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# *Dental Digest*

Dental Protective Association of the United States

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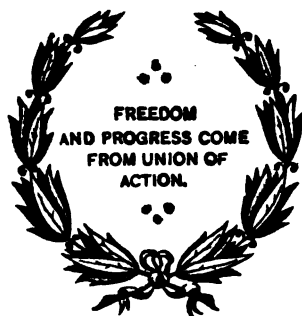
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# **Dental Digest**

**A MONTHLY SUMMARY OF DENTAL SCIENCE DEVOTED  
TO THE PROGRESS OF DENTISTRY.**

**THE OFFICIAL ORGAN OF THE**

**Dental Protective Association of the United States.**



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# The Dental Digest.

Vol. VI.

CHICAGO, JANUARY, 1900.

No. 1.

## Original Contributions.

### RELATIVE TOXICITY OF COCAIN AND EUCAIN.

BY A. H. PECK, M.D., D.D.S., CHICAGO. READ BEFORE THE WISCONSIN STATE DENTAL SOCIETY, AT MADISON, JULY 18-20, 1899.

Cocain hydrochlorate is a white crystalline alkaloid obtained from the leaves of the *Erythroxylon coca*, a small shrub of Peru and other Western South American countries. Its extensive use as a local anesthetic is so familiar to all that repetition is unnecessary. It is not my intention to especially refer to its anesthetic properties, but only to its toxic effects relatively with those of eucain, as observed in actual practice and as determined by original experimentation.

Eucain is a colorless crystalline powder of German production, and was placed on the market some years ago as an anesthetic to be used in a similar manner to cocain. It was soon observed that the first product, or that which is now called "alpha eucain," produced many undesirable and some very disagreeable effects, so much so that its use was soon largely discontinued. In February, 1897, Dr. Silex, of Berlin, brought forward a new substance, called Eucain "B," that it might be distinguished from the first, or Eucain "A." These are now termed—the first Alpha Eucain, and the second Beta Eucain. The use of alpha eucain has been almost entirely discontinued, and it is no longer furnished unless especially designated in the order. Beta eucain is said to be a chlorhydrate of benzoylvinyl-diacetonalkamin.

Were the action of these drugs as anesthetics always unattended with disagreeable, and, as is sometimes the case, alarming symptoms, both of local and systemic character, they would be to the dental and medical professions one of the greatest boons of the present century. Many minor surgical operations, both in general and dental practice, could by the aid of these drugs be performed with equally good results and with greater facility than without their use. Unfortunately, cocain is in its action one of the most

inconstant and unreliable drugs in the whole Pharmacopeia. It will always produce anesthesia, if properly used, and also frequently produces poisonous symptoms, oftentimes alarming. If a certain quantity of arsenic or morphin, or almost any other known poison be used under certain circumstances, the resulting symptoms are nearly always the same; we know what to expect. It is unfortunate that the same cannot be said of the action of cocain. I have often seen the most alarming symptoms of systemic poisoning result from the use of a certain quantity of cocain, while in other individuals a like amount under seemingly the same conditions produces no bad symptoms. There is no other drug in the whole realm of medicine in connection with the action of which individuals vary so much in point of susceptibility. I have seen all the stereotyped symptoms of systemic cocain poisoning result from the use in a pulp-canal of a small quantity of a one per cent solution, while again I have seen injected into individuals twenty minims of a two per cent solution, and this repeated as high as four times without poisonous symptoms resulting, so varying is the susceptibility of individuals to the action of the drug.

I cannot pass on without calling attention to the fact that cocain produces in some local as well as systemic poisoning, notwithstanding the fact that many disagree with this statement. I have seen from the subcutaneous use of cocain, for the extraction of one root of a tooth, three good teeth lost, with extensive destruction of the alveolar plates of bone, together with extensive sloughing of the soft parts, and all this in the absence of any systemic symptoms. Some, no doubt, will say this is the result of infection by an unclean syringe. But how is it to be proven that this is the case? The work has been done under the most careful antiseptic precautions. I have seen so many cases of local poisoning in varying degrees result from the use of this drug that I am forced to the belief that it possesses local as well as systemic toxic properties.

As to eucaïn "B," there is much to be said in its favor as compared with cocain. During the past year I have frequently used it in practice for devitalizing pulps, for local applications, and by injection, and have as yet observed no evil effects of note. Eucaïn, however, is not capable of producing the same degree of anesthesia under like circumstances as is cocain. This has been proven beyond the possibility of a doubt by the experiments I have made.

As this paper is to deal only with the toxic properties of these drugs, I will not here discuss their anesthetic properties.

Last year, while experimenting extensively with the essential oils, using guinea pigs largely, I did some work with cocain and eucaïn, enough to demonstrate that there was an interesting field in contrasting the two. Since then I have experimented extensively with them on guinea pigs.

How completely is the statement that cocain varies much in its action demonstrated and proved to be correct by the following experiments, the first one serving to exhibit the poisonous propensities of the drug, and this, too, in the absence of any marked anesthetic effect: A pig, weight eight and one-half ounces, into which was injected twenty minims of a 2 per cent solution of cocain, which amount represents eight-twentieths of one grain, after the lapse of eight minutes showed some indications of anesthesia, but these were comparatively insignificant. For the next six minutes various symptoms of distress were exhibited, such as a general spasmodic, jerky action of all the muscles of the body, accompanied with evidences of pain. At the end of fourteen minutes its hind legs were partially paralyzed, and one minute later it fell on its side completely overcome. Its head was firmly drawn back, all the muscles of its body being rigid; this condition would at short intervals give way to a distressful spasmodic action, general in its scope, and thus these sets of symptoms continued to alternate for a period of five minutes. During these twenty minutes the animal was not anesthetized to any appreciable extent, responding vigorously to a prick of the needle at any portion of the body. The heart action at first was somewhat depressed, but soon recovered, and thereafter its contractions were strong and rapid, evidently being much stimulated. The respiratory organs, at first slightly stimulated, were very soon depressed, and remained so until recovery set in. After twenty minutes it began to recover, and at the end of twenty-five minutes could stand on its feet; however, could not walk without falling. At the expiration of forty minutes recovery was far advanced. This experiment shows the toxic action of the drug with the absence of anesthetic effect better than any other on my list. While the poisonous propensities of this drug are frequently manifested, they are usually accompanied with anesthesia.

The following experiment shows in just as interesting and de-



cided a manner the anesthetic action of the drug to the exclusion of nearly all manifestations of poisonous symptoms: Weight of pig, eight and one-half ounces; twenty minims of a 2 per cent solution of cocain were injected at 10:15½ p. m.; at 10:25 general anesthesia was quite marked, there being little response to the prick of a needle, and when placed on its back the animal could hardly regain its feet. The heart action was somewhat depressed. At 10:27 it fell to its side, the heart action being now about normal; respiration somewhat shallow and quick. At 10:37½ it regained its feet and occasionally evinced a desire to run away, its heart action now being strong and rapid and respiration normal. At 10:46½ ten minims more were injected, this making in all three-fifths of one grain. The side in which the second injection was made almost immediately became swollen, as if considerable edema were induced. This has been noted by others and forms the basis of the claim of some that local sloughing is due only to infection of the products of edema which have infiltrated the tissues, liquefaction or pus-formation taking place and sloughing finally resulting. This is no doubt true oftentimes. Up to 10:56 the pig remained on its feet, and for the last five minutes preceding would walk about, prick up its ears, look up and chirp, and in various other ways gave evidence of enjoying a period of that intense beatitude and inner joyousness, while a succession of visions and phantasmagoria, most brilliant in color and form, trooped rapidly before the eyes, as related by Wood in connection with the experience of Montegazza while under the influence of this drug. Occasionally it would make a sudden rush, as if impelled by a plenitude of physical power, such as also took possession of Montegazza at various times. At 10:56 symptoms of general anesthesia were quite marked, a condition of general relaxation rapidly developing. At 11 it became unconscious and sank on its side to the table. Immediately after the second injection the heart action was noticeably depressed, but quickly revived and became exaggerated over the normal. The respiratory apparatus was somewhat depressed most of the time. At 11:03 there occurred a slight general spasmodic action of all the muscles, the head being slightly drawn back; this was accompanied with a feeble cry, as if in slight pain. Action of the heart was strong and rapid; the breathing quick and shallow; true tetanus of various muscles was observed. This endured only an instant, all the muscles becoming

perfectly relaxed as before. Thus the animal continued in a state of perfect general anesthesia. At 11:06 action of the heart became feeble and respiration scarcely noticeable. At 11:12½ the animal was apparently dead; respiration and the heart action both ceased. Thus it lay for thirty seconds; at 11:13 a faint gasp was observed, followed quickly by a second and third. The heart began to beat feebly, and at 11:15 the heart was beating regularly, but not so rapidly as normal; the respiratory apparatus was working regularly, but not strongly. Thus the animal remained in a perfect state of general anesthesia for twenty-three minutes, or until 11:38, when signs of recovery were observed. It was then placed in its box, and in the morning was as bright and lively as its mates.

The behavior of other pigs under the influence of cocain has in some instances approached the behavior of this one, but no other has been so typical. This, in connection with the results of all my experiments in this particular, to my mind effectually settles the question of the inconstancy of the action of cocain.

Let us now study the action of beta eucain under similar circumstances. Twenty minims of a 2 per cent solution of beta eucain, or eight-twentieths of one grain, were injected into a pig of eight and one-half ounces weight. At the expiration of thirteen minutes there was slight evidence of anesthesia, or perhaps better said, the action was that of a mild hypnotic, the animal appearing somewhat drowsy, at the same time all reflexes responded to any interference by way of pricking. The action of the heart and respiratory apparatus was slightly depressed. Three minutes later recovery commenced, and at the expiration of twenty minutes the effects of the drug had largely passed away. Two minutes later another twenty minims, or four-fifths of one grain in all, were injected. Five minutes later slight evidence of nausea was observed; at nine minutes the hypnotic action was more marked and was accompanied with slight evidence of true anesthesia. Its hind parts were somewhat paralyzed, and the reflexes slightly blunted. The heart action and respiration were more depressed than at first. At eighteen minutes it began to recover, and at the expiration of twenty-five minutes, or forty-seven minutes from the time of first injection, was able to walk about. One minute later, or forty-eight minutes from the time of the first injection, a third injection of twenty minims, making one and one-fifth grains in all, was made. Five minutes later nausea

developed and the animal seemed much distressed thereby. The heart action and respiration, being at first stimulated, soon became much depressed; after ten minutes twitching of all muscles of the body, spasmodic in character, developed; this condition increased until at the expiration of eighteen minutes the animal fell to the table completely exhausted. Its head was firmly drawn back, all the muscles being at high tension; rapid winking of the eyes continued, with gasping for breath and twitching of ears. For the next twenty minutes this condition continued, with violent tetanoid spasms of all muscles following one another with rapid succession, each spasm being accompanied with mournful squealing, which seemed to indicate much distress and pain. At no time were the reflexes, either plantar or cremasteric, lost; neither was there much evidence of general anesthesia; indeed, the entire action seemed to be more that of a paralyzer than of an anesthetizer. The heart action and the respiratory apparatus were much depressed. At times the heart-beat was almost discernible, and the animal would gasp distressingly for breath. At the expiration of this twenty minutes signs of recovery developed, and at the expiration of twelve minutes more it could stand on its feet, but could not walk without toppling over. It was now very late, so the animal was placed in its box, and in the morning was found to be none the worse for its experience. This case is interesting in that it seems to prove conclusively that at least three times the quantity of beta eucain is required to produce virtually the same degree of toxicity as is produced by cocain. These results, or this action of the two drugs, as related in this experiment and the first one with cocain, I regard as bearing directly on their toxic properties.

Legrand and Joanin, like Silex and Schmidt, have proved that one and one-fifth grains of cocain are necessary to cause death of a guinea-pig of two and one-fifth pounds weight, and that four and five-eighths grains of beta eucain are necessary to cause death of a pig of the same weight. I have been unable to secure pigs as heavy as this, the heaviest I have had weighing twenty-six and a half ounces. Taking their figures as a basis, and reckoning a fatal dose for a pig of less weight in direct ratio therewith, it would require five-sixths of one grain of cocain to cause death of a pig weighing twenty-four ounces, and of beta eucain two and four-sevenths grains would be necessary. Let me say in this connection that this manner of deter-

mining a fatal dose for a pig of a given weight is not a safe one to follow in dealing with pigs of less than twenty-four to twenty-five ounces weight. My experiments seem to prove conclusively that the ratio of a fatal dose of these drugs decreases rapidly in proportion to the decrease in weight and age of the animal.

In my work five-sevenths of one grain of cocain proved the limit as a fatal dose for a pig of twenty-four and one-half ounces weight. The symptoms manifested in this case were not in any essential particular different from those occasioned by a non-fatal toxic dose, which symptoms have already been described, except that at times they were all exaggerated, and especially was this noticeable in connection with the heart. After the brief depression of this organ which occurred at first, its action became greatly exaggerated, at times violently thumping, especially as the end drew near and the respiratory apparatus became more depressed. Death occurred at the expiration of nineteen minutes by paralysis of the muscles of respiration, the heart continuing to beat feebly and irregularly for thirty seconds after breathing ceased.

The violent action of the heart above referred to seemed to be more an effort on the part of the animal economy to supply the needed oxygen to the system through the medium of the circulation, during the period of respiratory depression, than the result of direct stimulation by the drug.

The difference of susceptibility of these animals to this drug is striking. In one instance one-half of one grain proved fatal to a female pig of twenty-five and one-half ounces weight, while in another instance a male pig of sixteen and one-half ounces weight survived the effects of a like quantity. However, on the whole I think the sex makes very little if any difference in the action of these drugs. The above fatal dose for a pig of the given weight has been determined after many experiments with pigs of different weights, and with different quantities of the drug. The same also is true in connection with beta and alpha eucain.

Of beta eucain two and two-sevenths grains are necessary to cause death of a pig of twenty-four and one-half ounces weight. In this experiment death occurred in thirty-two and three-quarter minutes from the time of injection. The symptoms were not unlike those already described in connection with the use of this agent, except that, as in the case of fatality by cocain, they were greatly

exaggerated. At no time were evidences of anesthesia marked, nor were the reflexes entirely lost. The action of the heart and the respiratory apparatus was depressed after a brief period of stimulation at first. When violent spasms occurred the heart action would be temporarily stimulated. Death occurred from paralysis of the muscles of respiration and of the heart, breathing and the heart action ceasing at the same time.

Alpha eucain has proved to be virtually on a par with cocain as to toxic properties. Five-sixths of one grain is the limit as to fatal action with pigs of twenty-five and one-quarter ounces weight. I injected this amount of alpha eucain into a pig of this weight, and at the expiration of seven minutes trembling of all its muscles occurred; at nine minutes its head drooped, with nose to the table; at eleven and one-half minutes the animal suddenly fell to its side and was seized with violent spasms; its heart action and respiration were temporarily increased, being very soon thereafter much depressed; nausea and some vomiting occurred; the drug also acted as a diuretic, renal discharge occurring quite freely; severe spasmodic contraction of all muscles followed one another in rapid succession, and were invariably accompanied with evidences of pain more or less severe. Death occurred at the expiration of eighteen minutes by paralysis of the muscles of respiration and of the heart, breathing and the heart action ceasing at the same time.

It is also stated that cocain cannot be sterilized by boiling, and that if subjected to a temperature of 176 degrees F. it is transformed into ecgonin, a substance devoid of all analgesic power; also that boiling does not in any degree affect the efficiency of eucain. I have demonstrated this statement regarding eucain to be true, but if it be true regarding cocain my experiments in this connection are in error. According to them, it is shown conclusively that boiling does not destroy the potency of this drug, but does modify it somewhat. I prepared a 2 per cent solution of cocain and also of eucain. These I subjected to a bath of boiling water for five minutes. These solutions were allowed to cool gradually, after which twenty minims of the cocain solution were injected into a pig of eight and one-half ounces weight, with the following result. At the expiration of seven minutes all its muscles were in a tremor, and at ten minutes control of its hind parts was lost; at eleven minutes it fell to the table completely overcome. The symptoms which

followed were the same as in other cases, except they were less violent. At the expiration of thirty minutes the animal had apparently recovered.

Into another pig of eight and one-half ounces weight were injected twenty minims of the boiled 2 per cent solution of beta eucain. No symptoms of note followed this injection, with the exception that the hind parts were for a time somewhat paralyzed. At the expiration of twenty-two minutes a second injection of twenty minims was made. The symptoms following were virtually the same as those which followed the second injection of the other case as related above. At the expiration of forty-five minutes after the second injection recovery was well advanced. A third injection of twenty minims was now made; the symptoms which followed were identical with and somewhat intensified over those of the other case related above. At the expiration of forty-six minutes after the third injection the animal had nearly recovered.

To recapitulate, my experiments lead me to conclude as follows:

1. The action of cocain is inconstant; one never knows whether the symptoms occasioned by like quantities of the drug, in animals or individuals, under like circumstances, will be similar or dissimilar.
2. The action of eucain is constant. The symptoms occasioned by the use of like quantities in animals under like circumstances, and, so far as my experience has gone, in different individuals also, are the same.
3. The first action of cocain on the heart is that of a depressant, and on the respiration is that of a mild stimulant; the aftereffects being on the heart that of a decided stimulant, and on the respiration that of a decided depressant.
4. The first action of eucain on both the heart and respiration is that of a stimulant, the aftereffects being that of a decided depressant.
5. Cocain causes death in animals by paralyzing the muscles of the respiratory apparatus, the heart's action continuing in a feeble way for a brief period after breathing ceases.
6. Eucain causes death in animals by paralyzing the muscles of the heart and of the respiratory apparatus, they ceasing to operate simultaneously.
7. Eucain in toxic doses nearly always causes nausea and occasionally vomiting.
8. Cocain is much less nauseating and scarcely ever causes vomiting.
9. Eucain is decidedly a diuretic, causing renal discharge in a majority of instances in which a toxic dose is used.
10. Cocain is not a diuretic to any appreciable extent, renal discharge having oc-

curred in only one instance in connection with all my experiments.

11. The pupils of the eyes in nearly all cases of cocain poisoning do not respond to light and are more or less bulging from their sockets.

12. The pupils of the eyes in most cases of eucain poisoning do respond feebly to light and rarely ever bulge from their sockets.

13. The action of toxic doses of eucain is more like that of a paralyzing, tetanoiding, convulsion-producing agent than it is like an anesthetizing one, the plantar and cremasteric reflexes nearly always responding.

14. Toxic doses of cocain cause general anesthesia in connection with the other symptoms in the majority of cases.

15. Tetanus of all striped muscles of the limbs, and Cheyne-Stokes breathing nearly always occur with cocain, but seldom does either occur when eucain is used.

16. Cocain is at least three times more toxic than beta eucain, and alpha eucain is as toxic as cocain.

17. Boiling does not destroy the efficacy of cocain, but it modifies it, and boiling in no degree lessens the efficiency of eucain.

Discussion. *Dr. J. H. Woolley*, Chicago: From experiments made several years ago I became convinced of the unreliability of cocain, and subsequent observation has confirmed my aversion to it, so that I do not feel justified in using it in my practice.

*Dr. C. E. Bentley*, Chicago: Eight years back a party of dentists experimented with cocain on dogs, to discover some antidote for cocain poisoning, and we found that aromatic spirits of ammonia, sulphate of morphia and coffee would resuscitate a dog which was in a comatose condition. I used cocain sparingly in my office practice until a patient nearly died from an injection of four minims of a four per cent solution. After that I gave it up almost entirely, and now use it only to anesthetise pulps before extirpation. Even from what the essayist has given us, I do not think we are warranted in the indiscriminate use of cocain or even eucain.

*Dr. A. H. Peck*: I have brought with me some guinea-pigs to demonstrate the actual truths as stated in the paper. This pig weighs  $24\frac{3}{4}$  ounces. Ordinarily  $\frac{1}{2}$  of one grain of cocain would prove fatal. I have injected 20 minims of water containing this proportion. According to the paper symptoms should be developed shortly and the dose will probably prove fatal. However, the action of cocain is different in different animals, and the figures given in the paper were the average of many experiments. You will now notice there is a slight tremor of the muscles of the pig, and if any

of you wish to take note of the respiration or of heart action it can easily be done. The present movements of the pig are not natural, but are caused by the drug. This extension of the hind leg is not normal and the pig is losing control; you see the general swaying and drawing back of the head. The pig has now fallen on its side and you see the tremor of the muscles of the limbs, occasionally true tetanus forms, continuous for an instant and then passes away. The time is now five minutes. The cocain is producing some nausea and there is a slight tendency to vomit. You now note the violent spasmodic action of the muscles. The breathing ceased just a minute ago, but the heart is still beating feebly. The time is now eight minutes and there is no heart action. Figuring from the fatal dose that I have quoted with the relative weights this ordinarily proves fatal with hydrochlorate.

The second pig here weighs 21 ounces. According to the ratio of the fatal dose of alpha eucain it would in this case be  $\frac{5}{8}$  of one grain. I injected this amount in 20 minims of water and it proved fatal. You probably observed that the symptoms manifested by this pig were very different from those shown by the pig into which cocain was injected. I will not describe them because they are amplified in the paper.

This pig weighs 14 ounces. According to the ratio of the fatal dose of beta eucain 2 grains would be sufficient, and I have injected this amount. You can watch the result. The injection of alpha eucain in the other pig caused death in  $10\frac{1}{2}$  minutes. There was paralysis of the muscles of both the heart and respiration. In the pig that died from cocain the heart continued to beat feebly for a short time after breathing ceased. This pig into which I injected 2 grains of eucain B is reviving steadily and will live. This should have proved a fatal dose, but this case substantiates the statement made in the paper, that eucain B is much less toxic than the others.

### MUMMIFICATION OF PULPS.

By R. C. GEBHARDT, D.D.S., BLACK RIVER FALLS, WIS. READ BEFORE THE WISCONSIN STATE DENTAL SOCIETY, AT MADISON, JULY 18-20, 1899.

My attempts in the line of mummification of pulps have in the majority of cases been failures. I do not know whether it was the fault of the method pursued or whether it was a natural sequence. In the *Cosmos* of 1895 Dr. Soderberg gives his method of proce-



sure, and it was this that I pursued. In substance it is as follows: The pulp is devitalized, using equal parts of arsenic, cocain, alum and glycerol, q. s. to make paste. When devitalized the main pulp chamber is opened up and its dead contents are drilled out, leaving that part of pulp in root-canals untouched. Then fill pulp-chamber with the paste, pricking the paste into remains of pulp in the canals, although this last is not necessary. Then seal with cement and over this insert the permanent filling. The mummifying paste is composed of the following:

Dried alum . . . . .	1 ounce.
Thymol . . . . .	1 "
Glycerol . . . . .	1 "

Zinc oxid q. s. to make stiff paste.

In December of 1895 I commenced to experiment with this method, thinking what a boon to suffering humanity it would be, and also what a load would be lifted from the shoulders of the dental profession in the time saved and the relief from the nervous strain incident to the removal of obscure pulps. I doubt if I ever treated and filled the roots of a tooth by the old method but what I dismissed the patient for the time being with fear that I should see him return with a swollen face or perhaps worse. Of the thirty-five or more cases treated with the mummification process during three years a few returned to me inside of six months.

One peculiarity noticed in those that returned was the seeming disintegration of the cement, a bulging out as it were, and it seemed as if there was expansion to such an extent as to throw out the filling or fracture the walls of the cavity. In opening up several of these after being treated by the mummification process I found the pulps white, very tough, and they appeared desiccated and shriveled, and bathed in moisture. In several others extracted on account of soreness I found pulp in two of the canals perfectly dry, very tough and of whitish color; in the third canal, which no doubt caused the trouble, found remains of pulp surrounded with moisture but tough and white. One case which I frequently see has often slight soreness.

When examining these cases I concluded that to mummify a pulp thoroughly, so as to give no trouble afterwards, we must have some remedy that will not shrink the pulp or shrivel it to such an extent that there will be a space between it and the walls of the canal.

Otherwise secretions of some kind will find their way into the canals and sooner or later give trouble.

Another reason why I feared to continue the mummification was that after applying the paste the pulp remnants were shriveled or drawn from the apex of the root, thereby leaving an opening at apex through which moisture found an entrance. If the apex could be tightly sealed or encysted at the very beginning, before the drawing away of pulp, we might avoid this.

Thymol, which is relied upon as the principal antiseptic, is slow in action, and whether a pulp would remain sterile indefinitely under its antiseptic action is doubtful.

Dr. Soderberg mentions alum as one of the properties of an ideal mummification agent, an ingredient that will quickly cause mummification by drying or shriveling of the pulp tissues. In that alone we can look for future trouble. The pulp being shriveled will naturally draw away from the walls of the root-canals and secretions will eventually fill this space, and it is doubtful if thymol will indefinitely keep this moisture in an antiseptic condition. Furthermore, the majority of cements are not impervious to moisture, and in several of the cases opened up the cement looked as though it were disintegrated, perhaps by action of the mummification paste. Although I have about twenty cases in which the mummification has been a success, if after three years one can call the treatment a success, I feel that with 50 per cent of the cases a failure it does not warrant a continuance of this method of treating teeth.

Discussion. *Dr. J. H. Woolley*, Chicago: I have never mummified pulps because I think the treatment unscientific. In root-filling the canal should be thoroughly aseptic, absolutely dry, and the filling should fill the canal throughout the entire length, and should not disintegrate. Mummification meets none of these requirements. I had one case where the pulp had been mummified and it was necessary to treat the tooth for nine months before it was serviceable. In speaking of pulps and fillings I wish to emphasize the necessity for proper occlusion of filled teeth. Many scientific operations fail through poor articulation, and I have found cases where the pulps died from malocclusion.

*Dr. W. H. Cudworth*, Milwaukee: I took up this practice about the same time Dr. Gebhardt did, soon after reading the article in the *Cosmos*. From about 150 mummified pulps I had more trouble

than with all the pulps otherwise treated in eighteen years' practice. It is impossible to successfully treat such teeth when ulceration occurs.

*Dr. F. L. Barney, Viroqua:* My experience has been that if much of the pulp is left in position the tooth must be treated afterwards, but when the most of it is removed the balance can be successfully mummified.

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## OPERATIVE TECHNICS.

BY RAYMOND J. WENKER, D.D.S., WATERTOWN, WIS. READ BEFORE THE WISCONSIN STATE DENTAL SOCIETY, AT MADISON, JULY 18-20, 1899.

Previous to the introduction of the course of operative technics the student on entering college immediately began to operate in the dental infirmary, without any preparatory knowledge of dentistry except what he might have acquired as an apprentice. It was observed, however, that even those students who had acquired some knowledge of operating knew little or nothing of dental anatomy; nor was their familiarity with the forms of instruments, the correct manner of handling them, or the nature of the work itself, what could be desired.

The first effort to systematize a course in operative technics was made by Dr. G. V. Black, who presented the outline of his plan in a paper read before the Chicago Dental Society on June 21, 1888. After a short period of probation this course rapidly found favor with educators and was introduced into the curriculum of studies by many prominent dental schools.

Operative technics is a preparatory scheme of instruction in those preliminary branches of dentistry which help to qualify the student to operate in the mouth. Here, also, those particular muscles which are used in instrumentation are developed and trained to a degree of perfection which will insure their easy adjustment, coordinate movement and accurate control of the instrument in operating; the eye, too, is trained to a fine appreciation of the different parts of the teeth, of the interproximal spaces, of the instruments, cavities and fillings.

The course taught in the Dental Department of the Milwaukee Medical College embraces a period of twenty-six consecutive weeks of ten hours each—three hours being devoted to lectures and quizzes, the remaining seven to demonstration and practice. The

studies comprising the course are: *First*. A study of dental nomenclature. This consists of the definition, pronunciation and practical application of all the technical terms used in dental anatomy.

*Second*. A study of dental anatomy, which is divided into a theoretical and a practical part. The theoretical is taught by recitations and quizzes, using Black's Anatomy as a text-book, together with copious and original notes from various sources. These notes are used as a supplement to the text-book, and consist of diagrams showing the typical outline and groove arrangement, the usual number of grooves, lobes, pulp-horns and root-canals of each of the permanent and deciduous teeth; containing also a brief description of the main points of difference between the several teeth of each denomination. The practical part consists of filing longitudinal and cross-sections of the teeth, drawing different aspects of their outward and inward forms, taken singly and collectively, and of carving the natural forms in ivory.

For convenience in filing sections each tooth is sealed to a wooden block, and the number and aspect of the tooth are annotated on the upper corners. After all the filings are made the student cuts a line in the dentin next to the enamel with a wheel-bur. This line shows the thickness of the enamel at different points, the form of coronal portion of dentin, and location of gingival line. Each student then prints his sections in a note-book, and also prints as many other sections from the large collection at the school as he may have time for. In drawing the student reproduces the illustrations in the text-book, and in so doing his attention is more closely directed to outline form and to the location of the surface markings.

Before taking up carving a few preliminary instructions are given in instrumentation. This is done to give the student a right method of handling the new instruments which he is now about to use for the first time—the regular instruction in the use of instruments comes later. The carving is done with such tools as files, chisels and excavators. The student selects a well-formed natural tooth, seals it to an ivory block with the mesial surface down, and then roughly sketches the outline on the ivory. The tooth is then removed and the ivory cut to conform to the outline in such a way as to make the two cut surfaces parallel the entire width of the block; the tooth is next sealed to one of these cut surfaces with the labial or buccal surface down, and the outline sketched on the ivory,

after which the tooth is removed and the ivory cut as before. This gives the general form of the tooth with sharp corners and affords an excellent opportunity to make a practical study of the various angles of the teeth. In the remainder of the work, which demands great care and attention, the student must rely solely upon eye measurement to reproduce perfectly the physical form of the natural tooth in all details. In some schools it is customary to reproduce the natural teeth in clay or other material, and to make them several diameters larger than the original; but a little reflection will show that the student can get a more accurate idea of the teeth by reproducing them in ivory in their natural size. By working in ivory he gets a better idea of the character of dentin than by working in clay or any other substance, because of the close resemblance between dentin and ivory; and by making the reproduced teeth the exact size of the natural ones, his eye is trained to a finer appreciation of the form and size of the relative parts of the different teeth.

*Third.* A study of steel and of instrument-making. The student is first instructed in the composition and properties of steel, and in the manner of forging, filing, polishing and tempering instruments. He is then furnished with blank instrument forms made for this purpose, and proceeds at once with the work of instrument-making. The object in requiring students to make instruments is, first, to give them a perfect conception of the forms of the instruments; second, to familiarize them with the working qualities of steel that they may be better able to care for their tools; and third, that they may acquire sufficient mechanical skill to make such new instruments as special cases in their afterpractice may render necessary or useful.

*Fourth.* A study of instrument nomenclature and instrumentation. The student is taught the names of the different parts of the instruments and is instructed in Black's classification of instrument names, his system of measurement and formation of formula names. He is also taught how to grasp the instrument for the various positions, and the proper rests for each position; also the direction of the force to be applied with each instrument which he uses.

*Fifth.* A study of the physical character of enamel and dentin. This embraces the microscopical construction of enamel, dentin and cementum, their relation to each other, especially the mechanical relation of the enamel rods to the dentin, with special reference to

enamel cleavage; the physical strength of dentin; of supported and unsupported enamel; and the stress exerted upon the teeth in ordinary use and by special effort.

By the time this part of the course is reached the student will have trained his muscles and his eye to a fair degree of skill in filing sections, drawing, carving and making instruments. With a dozen or more carious teeth of different denominations, mounted in plaster, he now proceeds with exercises in enamel cleavage and excavating, being particular to hold the instruments properly, and to apply and control the force as instructed in the division just preceding.

*Sixth.* A study of dental pathology and therapeutics. The more important pathologic and therapeutic principles, with particular reference to the pulp and pericemental membrane, are briefly pointed out in such a manner as to impress upon the class the importance of thoroughness in the work to follow.

*Seventh.* A study of cleaning and filling root-canals. In this connection the student is taught the application of the rubber-dam. Those teeth which were invested in plaster are now used for this purpose. The canals of these teeth are cleaned, and if necessary enlarged with sulfuric acid, then desiccated and filled with different materials. Each tooth is now removed, broken with a hammer, and carefully examined to ascertain how perfectly the canals have been filled.

*Eighth.* A study of cavity nomenclature and cavity preparation. The plan is as follows: Every wall and angle in a cavity is given a name which corresponds as nearly as possible to the system of naming the surfaces and angles of the teeth; for instance, the walls of a buccal cavity in a lower right molar would be named thus—the wall nearest the gingival line, the gingival wall; the one nearest the occlusal surface, the occlusal wall; the one nearest the mesial, the mesial wall; the opposite one, the distal wall; and the wall nearest the pulp, the axial or pulpo-axial wall. The line and point angles are named by combining the names of the walls which join to form them, as the axio-gingival line angle, the axio-mesio-occlusal point angle, etc.

The cavities are divided into two general classes—smooth surface, and rough surface or pit and fissure cavities. A pit and fissure cavity is one in which caries begins in a fault and directly penetrates the enamel and dentin, whereas in a smooth surface cavity caries

spreads upon the surface of the enamel before penetrating it, and ultimately affects all that area which is habitually unclean. For the definite location of a cavity the name of a surface and the division of such surface are used, as labio-gingival cavity in an incisor or cuspid, mesio-occlusal cavity in a molar. In teaching cavity preparation an order of procedure is followed which is applicable to any cavity wherever located.

The student is taught the shape of ideal forms in the following order: outline, resistance, retention, convenience form, and enamel bevel. This is followed by detailed instructions in the manner of establishing each of these forms in cavities on the several surfaces of the different teeth. Each student selects a number of natural teeth as free from caries as possible, and with his carved teeth forms a complete set, the roots of which he invests with soft rubber tubing. The teeth are then arranged in arch form by sealing the crowns in impressions taken from a mouth containing a full set of natural teeth. If any part of the impression material approaches the roots it is cut away so as to allow a greater thickness of plaster to surround them. These impressions containing the teeth are now filled with plaster, and when this has become hard the models are removed, trimmed and mounted in an articulator.

The instructor now removes some of the teeth from the cast and outlines typical cavities on them with a pencil, whereupon the pupil proceeds with exercises in the preparation of cavities, beginning with the ivory teeth, using hand instruments and closely following all previous instructions bearing on the subject. After some cavities are prepared out of the dummy mouth, the student himself outlines cavities on natural teeth, replaces them in the alveoli, and continues practicing until the necessary proficiency is acquired.

*Ninth.* A study of filling materials and their manipulation, consisting of a study of the properties, composition, and manner of manipulating gold, tin, amalgam, gutta-percha, oxyphosphate and oxychlorid. The teeth with prepared cavities which were mounted in plaster with rubber tubing on their roots are now wedged apart and filled with these materials. As the working of tin enables the pupil to become familiar with the manipulation of cohesive foils, it is used to a large extent in this course, and is known in the technic department as "student's gold." It is manipulated in the same manner as cohesive gold, except that it is not annealed.

One of the important aims of the course being to develop and train the muscles, the student is required to condense the filling materials by hand pressure. He is taught that the best way to anneal foil is in a tray or on an electric annealer; that the primary requisite in a filling is perfect adaptation; that the direction of force effective in adapting foil to a cavity wall is at an angle of forty-five degrees with such wall; that the force necessary to exert for perfect condensation depends on the size of the plugger point and the thickness of the pellet or fold to be condensed; that the best manner of condensing foil is to step with the plugger from one place to another in regular order over every portion of the pellet or fold as he proceeds; that the surface of the material should be kept free from depressions and irregularities; that a plastic filling material should never be introduced into a cavity which involves more than one surface of a tooth, without supplying the missing wall of such cavity with a matrix; and that unless the physical form of the teeth and their relation to each other is improved, the destructive enemy will have easier sailing than before the cavity was formed.

Since the introduction of this method of teaching operative technics, the most gratifying results have been obtained. The majority of the class by the end of the first year at school have acquired a good working knowledge of operative dentistry and are fully qualified to enter the infirmary at the beginning of their second year; and when they approach a patient for the first time, it is with a very just confidence that they are well prepared to begin the work. Besides learning all the technicalities, they have gained confidence in themselves, and this is necessary if a student is to do good work.

Discussion. *Dr. T. W. Brophy*, Chicago: The supervision of technical work in teaching is one of the greatest improvements in the whole system of dental education. Before that time what the student learned about operations was at the expense of the patient's suffering. Now, however, the student is practically prepared before he operates on the live subject. As we look back it seems remarkable how those of us who studied dentistry in years gone by succeeded. The paper is an index of the progress of modern dentistry.

*Dr. E. B. Owen*, Brodhead: We should not think of employing a surgeon to perform an operation who had not first studied the anatomy of the human body and operated on the cadaver or models. It is just as reasonable to expect a student to operate successfully



on the live subject without first studying the outlines of the teeth and anatomy of the mouth, as well as the operations which operative technics can drill him in.

### EXTRACTION OF LIVE PULPS WITH IMMEDIATE ROOT-FILLING, USING COCAIN AND CARBOLIC ACID, WITH PRESSURE.

BY J. J. WRIGHT, D.D.S., MILWAUKEE. READ BEFORE THE WISCONSIN  
STATE DENTAL SOCIETY, AT MADISON, JULY 18-20, 1899.

When cataphoresis swept over us like a tidal-wave it did not sweep us all back into an incredulous sea, for it gave the profession positive proof that the formerly most painful operation could be performed without pain. Principally because of the time consumed this method was not wholly satisfactory, but there are cases which present themselves where time is no object and where cataphoresis is indispensable. I formerly depended upon cataphoresis for anesthesising and extracting live pulps of anterior teeth for immediate root-filling, but found the following method quicker and more simple.

Saturate a pellet of cotton with 95 per cent of carbolic acid and dip into powdered cocain. Place the cotton upon exposed portion of pulp, covering same with vulcanite rubber, and press gently to place with an amalgam burnisher, just large enough to enter the cavity. Maintain the pressure at such a degree that the patient will be conscious of the operation without feeling intense pain. In a few minutes this sensation of pain will pass away, no matter how hard the pressure.

Remove the application, and with a bur cut well into the pulp-chamber. Prepare another application and apply as before. When the pulp no longer responds to pressure, remove the application and pulp extirpation can be accomplished with little or no pain. A fine barbed broach is used for this purpose.

The hemorrhage can usually be controlled by the use of 95 per cent of carbolic acid. In case the flow of blood should be excessive and hard to control, tannic acid may be used in connection with the carbolic, forcing it well up to the apex of the root and allowing it to remain a few moments.

In many cases the pulp can be removed intact, but when the root is flat or constricted and quite inaccessible to a broach, make an ap-

plication of sulfuric acid. This will destroy any living tissue, and after the application of bicarbonate of soda the canal will be found white and clean. By the use of alcohol or chloroform the root is now made thoroughly dry and ready to fill. Following the application of an antiseptic, a deviation is made from the usual method of filling with chloro-percha and gutta-percha. A gutta-percha cone is first placed in the root-canal, and then the chloro-percha is applied, dissolving the point. Another one is then inserted and forced to place. This insures the complete filling of the root without danger of confining air in the canal. In many cases where chloro-percha is used first air is confined in the upper third of canal, and when the gutta-percha point is inserted some of the air is forced through the apical foramen and trouble ensues.

Carbolic acid is preferred—first, because it is a good local anesthetic. Second, it acts as a styptic on the pulp, and thus renders the hemorrhage easier to control. This is especially desirable in anterior teeth, where, if proper care is taken, and the blood not permitted to enter the cavity, discoloration may be avoided to a great extent.

In cases where the cavity is large and easy of access black rubber will be found better on account of its tenacious quality, but where the cavity is small red rubber is preferable.

It has been generally supposed that the least pressure on an exposed pulp would cause excruciating pain, but the pulp is no exception in this regard to any other tissue of the body. Cut off the circulation and produce pressure in any part of the body, and local anesthesia is produced. The painless removal of the overhanging tissue, after the adjustment of a cervical clamp, is a good illustration of the principle here involved. This tissue is normally very sensitive, but the pressure of clamp and rubber-dam produces local anesthesia, so that it may be cut and removed without pain.

The simplicity of this operation should recommend it to every dentist, and the results are more than satisfactory. During the time I have used it my patients have been loud in their praises and appreciate the difference between it and the arsenic treatment.

Discussion. *Dr. H. L. Banzhaf*, Manitowoc: I see no objection to the use of carbolic acid, but there are some cavities where the decay is slow and deep and where it is very difficult to apply the dam, in which cases there might be difficulty in confining the

carbolic acid. I therefore use alcohol. A 25 per cent. solution of pyrozone is very good to stop hemorrhage.

*Dr. F. L. Barney, Viroqua:* I have tried the essayist's methods, and while the tooth retained its color and there was no soreness, it was sensitive to heat and cold.

*Dr. J. J. Wright:* I had no trouble with thermal changes. There has sometimes been slight pericementitis for a day, but not so much as occurs with the arsenic treatment.

*Dr. Crosby, Chicago:* During the past year I have treated many teeth in this way and have used carbolic acid. It is practicable in all the anterior teeth where the pulps are not badly inflamed. With congested pulps you will find it difficult to force anything into the tissue. Carbolic acid is advantageous because of its styptic quality, which would at least minimize the excessive hemorrhage liable with the extirpation of pulps by this method. Because of this trouble I almost never fill the canal at the same sitting. When the teeth are very badly broken down by extensive decay a thin matrix of German silver can be fitted closely to the tooth, and the rubber applied over that. This forms a receptacle so that the cocain will not be forced out of the tooth but directly downward toward the pulp. Several months ago there was a man in Chicago who disclosed the "secret" of a method similar to this and charged \$25 for the information. It was not a new thing at that time, but had not been advertised very extensively.

*Dr. A. H. Peck:* I have had considerable experience in this practice, as I have been comparing the action of cocain and eucaïn with it. There has been sensitiveness to thermal changes in some cases where cocain has been used, but nothing like that resulting from arsenic, where it seems as if the drug had penetrated the tubuli and been absorbed into the soft parts about the gingival portion of the teeth. I have seen cases after the use of arsenic which proved very sensitive to thermal changes and had to be treated carefully for months. In a majority of cases where cocain was used I have seen after the lapse of one, two or three days considerable tenderness developed in the apical tissue especially, so that the slightest pressure caused considerable pain. Eucaïn B used with pressure under similar conditions will not produce the same degree of anesthesia that cocain will, for a larger quantity and longer time are necessary to secure similar results, but I have never observed any tenderness

of the teeth after eucain was used. The hemorrhage after immediate removal of pulps is sometimes copious, and I have found that witch-hazel freely used would stop the flow in a very short time. After using it freely I seal some mild, nonirritating antiseptic in the canal and let it rest a few days, and generally no tenderness develops.

*Dr. J. J. Wright:* There are cases where cocain is not advisable, especially where the caries has extended beneath the gum, but in normal cases I prefer carbolic acid because it is a heavier fluid and can be pressed in better. Alcohol evaporates too soon.

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**MOUNTAIN SICKNESS.**—A very curious form of mountain sickness has shown itself among the laborers engaged on the Jungfrau railway. After living ten days at a height of about 8,000 feet an engineer began to suffer from a throbbing pain in his teeth, and his gums and his teeth were very much swollen. After five days the ailment vanished entirely, leaving no traces behind, and no defect could be found in the teeth. All the workmen, both Swiss engineers and Italian laborers, suffer in a similar manner.—*Westminster Gazette*.

**MOUSTACHED WOMEN.**—A learned German, who has devoted himself to the study of physiology, anthropology and allied sciences, makes the rather startling assertion that moustaches are becoming commoner among women in the present day than in the past. He says that in Constantinople, among the unveiled women that are to be met, one out of ten possesses an unmistakable covering of down on the upper lip. In the capital of Spain again, the proportion of ladies with the masculine characteristic is said to be quite equal to that observable on the Golden Horn. An American medical man states that in Philadelphia fully 8 per cent of the adult fair sex are similarly adorned, and probably the proportion would be still larger but that many women take the trouble to eradicate the unwelcomed growth by the application of depilatory preparations.—*Pharm. Jour*.

**ETHYL BROMID NARCOSIS.**—The increasing use of ethyl bromid renders any information regarding it of particular value. Dr. Schmieden, of Oldenburg, writes that he has employed chemically pure ethyl bromid for a number of years in minor operations on the throat, nose and ear. Children may be held by a nurse, but adults are seated on a chair provided with a head rest. The writer employs the usual chloroform mask, which he covers with several layers of mull, over which is fastened a layer of parchment paper. The entire quantity of ethyl bromid is poured into the mask at once, and the latter immediately placed tightly over the nose and mouth. Fifteen gm. are sufficient for children; about 20 gm. for adults. Fresh mull and parchment paper are used for each narcosis, and so is a fresh bottle of ethyl bromid. No unpleasant by-effects have ever been observed from a pure article. The ethyl bromid appears to be particularly useful for employment on children.—*Mercks Report*.

## Digests.

**PATHOLOGY OF ALCOHOLISM.** Scarcely any disease, perhaps none, exerts so extensive a pathological influence as alcoholism on the organs, tissues and fluids of the body. The paralyzing effects extend throughout the nervous system from its center to its periphery. This paralytic effect is seen not only in the body, but in the intellect and moral sense. The principal degenerations in alcoholism are fatty, fibroid and atrophic. Fat is substituted for normal tissues; alcohol withdraws water from the tissues, and thus they become dry and hardened and at length assume a fibroid character; through lack of proper nutrition the cells become shrunken and atrophied. By these degenerations the anatomical integrity of organs is destroyed, partially or wholly, and their functional activity is impaired. Thus the whole system suffers and in time becomes a wreck. Alcohol has been aptly termed "the genius of degeneration."—*J. W. Grosvenor in Quar. Jour. of Inebriety, July, 1899.*

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**STOMATITIS DUE TO MILK.** P. Ritter, a Berlin dentist, reports two cases which were unusually hard to cure. The first was that of a child fifteen months old, who had been under treatment for three weeks. Milk had been prohibited, the mother's attention having been attracted by the "large quantities" of milk which the child drank. The lower jaw presented a necrosis of the gum, and a few teeth were loosened. Painting the gum with undiluted tincture of iodine and carefully cleansing it with a solution of permanganate of potash cured the affection, although two of the loosened teeth had to be removed. The second case was that of a girl 25 years of age, who had been ordered a milk cure. A week after taking raw milk the gums began to swell, and eight days later fever came on. In spite of the application of a solution of alum, the affection invaded the throat and chills occurred. The whole mouth was covered with an aphthous deposit, and particularly the region of the lower third molars bulged out and was covered with gray plaques. Painting the parts with undiluted tincture of iodine, conjoined with a mouth-wash of acetate of alum, did very well. The patient was free from pain next day, and was able on the third day to take food without inconvenience.—*Allg. Med. Centralist.*

**REFLEX PAIN FROM MOLAR.** I was called at 1 a. m. to see a young man 24 years old, who, the message said, was dying. When I reached the house he was trying to lie on a couch. His face was flushed and eyes congested; he was perspiring profusely, unable to remain in any position for more than a minute at a time, short spasmodic attempts to breathe, and complaining solely of constricted pain over the heart, over which he kept his hand constantly. Could obtain no history of the case from him, but from family learned that he had taken very suddenly in the manner above described about two hours before. Had had toothache in lower left molar for about a week and had used camphor freely on gum, and more freely than usual just before attack came on.

Gave him aconite 3x every fifteen minutes, and within one hour he was resting quietly. Saw him the following two days, feeling quite well with exception of some toothache, but with no more chest pain. Was called again the second night and found him worse than the first time. I again gave him aconite 3x, which seemed to give a slight relief, but finally was compelled to give him an opiate, as it took two men to restrain him in bed.

I now knew that the trouble must come from his tooth, for when it ached he had no other pains, and when had chest pain his tooth felt easy. The next day I took a dentist with me, who pulled the tooth, which was an unusual one, having exostosed roots that had extended quite deeply into the bone. His recovery was rapid after the extraction.—*Dr. C. B. Kern in Med. Visitor.*

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**DR. HENSON ON FAITH HEALING.** It is well known that Dr. P. S. Henson, the popular Chicago Baptist minister, has a defective eye. We go to hear him preach once in a while, and have got accustomed to the peculiar squint of that optic—in fact, we rather like it. But a good man and his wife who are members of the Henson household of faith have felt for some time that their pastor would be much improved if the lame eye could be made like unto the other. These persons are firm believers in the faith-cure theory. Why should their beloved pastor not have two good eyes as well as one? They went to see him about it.

"We have been praying for you that you may have two perfect eyes," they said to the doctor, "and have come to pray with you. Will you not ask the Lord right now to give you a new eye?"

Dr. Henson's reply was startling.

"What kind of teeth have you?" he suddenly asked the brother.

"Why—why, that's a strange question," he stammered, "but I don't mind telling you that my teeth are mostly false."

"What kind of teeth do you use, sister?" he asked of the other.

"Same kind," she frankly admitted.

"Well, good friends," rejoined the doctor, "you go and ask God to grow some new teeth in your mouths. According to your theory He will do it without delay. When you get your teeth, come around and we will see what can be done about that new eye!"

This happened some little time ago. The good people are still grinding on artificial molars, and Dr. Henson still looks down on his great congregation with one eye. But he can see farther with that bright optic than most people can with two.—*Epworth Herald*,

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**EYE AFFECTED BY PATHOLOGICAL CONDITIONS OF THE TEETH.** Lagleyze (*Archives D' Ophthalmologie, March, 1899*) claims that the following ocular affections may sometimes be of dental origin: Epiphora, blepharitis, conjunctivitis, keratitis, glaucoma, spasm of accommodation, mydriasis, blepharospasm, strabismus, neuralgia, photophobia and amblyopia. Caries or periostitis of upper molars is not an infrequent cause of a diseased condition of the eye. Hypersecretion of the lachrymal gland is often of reflex origin, the dental irritation being communicated by filament of the orbital branch of the superior maxillary division of the trigeminus.

Many cases have been published which show the possibility of glaucoma being a reflex affection. Mention is made of a case in Abadie's clinic; sclerotomy had been done twice without any beneficial results. However, upon the extraction of a diseased tooth the intraocular tension was quickly relieved. Paralysis or paresis or accommodation may be caused by odontalgia. It is a common observation that dental neuralgias cause a hyperesthetic condition of the eye. Galezowski says that monocular mydriasis, eight times out of ten, is due to dental affections. However, Lagleyze regards this statement as an exaggeration. Redard, Mitchell and others cite cases of strabismus in infants during the period of dentition.

Vasomotor paralysis, especially in children, causes a congestion of the conjunctiva and lessens its resisting power, and as a result

the eye is more susceptible to the action of microorganisms. Power reports a case of ulcer of the cornea and anesthesia of the parts supplied by the ophthalmic branch. After extraction of diseased teeth the corneal trouble was much improved and the anesthesia entirely disappeared. Abadie is of the opinion that stricture of the lachrymal duct is very frequently caused by a periostitis extending slowly up the superior maxilla. It is advisable to carefully examine the teeth in all ocular diseases which are of doubtful etiology and which do not readily yield to ordinary methods of treatment.

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**CYST OF SUBMAXILLARY REGION.** By P. C. Fenwick, M.B. Lond., M.R.C.S., L.R.C.P. A man aged 42 was admitted under me complaining of a tumor the size of a golf-ball lying close to the symphysis of the lower jaw. It has appeared during the last three months. On examination it is hard and fixed to the symphysis. Fluctuation is obtained on deep pressure. No pulsation. It can be felt pushing up the floor of the mouth and extending backward towards the base of the tongue. I diagnosed a cyst in connection with the thyro-glossal duct. An incision was made transversely at about an inch below the symphysis and after a long dissection the wall of the tumor was exposed. It was firmly fixed to the jaw, and on dissecting further a band could be felt running upwards to the base of the tongue. The band was ligatured and the cyst then opened and a quantity of cheesy material evacuated. The wound healed well and the patient was discharged with a clean scar and no swelling perceptible.

Ten weeks later the patient reappeared with an exactly similar swelling in the old position, and I again operated and found exactly similar conditions to the first operation. The cyst was opened and thoroughly explored. Its walls were very thick and spongy, and the contents of the sac were of the same thick cheesy material as at first evacuated. I curetted the walls, and after swabbing with chlorid of zinc solution closed the wound partially and plugged the cavity with gauze. There has been free discharge of thin colorless fluid since, but the wound is healing, and I hope the cavity will become obliterated. I believed the cyst to be a dermoid, but was unable to find anything in the evacuated material beyond the caseous material. The duct ligatured at the first operation I believe was the unobliterated duct.—*Brit. J. D. S., Nov. 1899.*



**TREATMENT OF CERTAIN FORMS OF NEURALGIA BY THE INJECTION OF OSMIC ACID.** By William H. Bennett, F.R.C.S. Eng. The patient is a woman, aged 66 years, who was admitted into St. George's Hospital. For eight years she had suffered from spasmodic tic. At its onset only a small area above the left eyebrow was affected, but by degrees the pain extended until the three divisions of the fifth nerve were all more or less involved. Within the eighteen months prior to her admission the pain had become more acute but somewhat less diffused, and her general health, as is common in these cases, had not been much affected excepting from loss of sleep, which during the previous nine months had reduced her considerably. Upon her admission she was found to be a fairly nourished person with an anxious aspect. At intervals varying from ten minutes to several hours she was seized with attacks of pain (with spasm) which, commencing just below the left eye, extended round the orbit and over the forehead, finally concentrating about a spot near the center of the vertex of the skull. Occasionally, but not always, the pain shot downwards along the lower jaw. The attacks were easily started by a drink of cold water, by a cold draught of air on the cheek, or by manipulation. The tongue was free from pain and taste was unaffected. As is usual, the severity of the condition varied a good deal at different times, but in the aggregate the symptoms reduced her life to such a miserable state that she was prepared to submit to any treatment, however severe, which promised to afford even temporary relief. As all measures at the disposal of the physician, including the continuous current, had been tried without avail, it was clear that nothing remained but surgical interference. Under ordinary circumstances two surgical alternatives suggest themselves in such a case: (1) the exposure and avulsion of the distal end of the three divisions of the trigeminal nerve; and (2) the resection of the Gasserian ganglion. The former operation is uncertain and not altogether satisfactory; the latter is too severe an operation in itself and, if current reports are to be credited, its immediate risk is too great to render it an operation to be adopted excepting under very extreme circumstances. Indeed, so far as I am concerned, it is an operation about the justifiability of which under any circumstances there is room for some doubt; if, however, the operation is right in any case it certainly would have been so in this. Fortunately I have of late had

a considerable experience of the treatment of certain forms of neuralgia by the intraneural injection of osmic acid. This method does not seem to have had much trial in this country. My previous experience of the treatment having been entirely favorable, I adopted it in this patient, injecting a solution (1.5 per cent) of osmic acid into the terminals of the three divisions of the fifth nerve. The immediate effect of the injections was to almost end the pain, and what remained disappeared by degrees in the course of a few days, leaving the patient perfectly free from discomfort and sleeping well, which she had not been able to do for several years.—*Lancet*.

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**CANCER OF THE SKIN.** By Jonathan Hutchinson, F.R.C.S. London. In epithelioma of the lip or "pipe cancer" the lip hardens and cracks under the pressure of the dirty pipe, the sore becomes warty at its edges, a cauliflower-like surface is developed, the glands under the jaw rapidly become involved, and fatal systemic infection is complete. In striking contrast with this is the cancer (flat-celled) of the eyelid or cheek, which may run for twenty or thirty years and destroy almost the entire face without involving a single gland or threatening the life of the victim. This is not a matter of region solely, because we may also have upon the cheek the "crateriform ulcer," which, though rare, is rapidly fatal.

In other cases of skin cancer the disease may make its appearance in freckles, which after childhood are often to be regarded as abnormal. Their presence also often coincides with a tuberculous tendency. An abnormal deposition of pigment is always to be regarded with suspicion. Moles are frequently the starting point of malignant disease, usually sarcoma, especially those which are not congenital. Curiously enough, they may be the initial point of a general metastasis, and yet be very little affected themselves.

The constitution of the skin in which cancer originates has a marked influence upon its character. Rodent ulcer, for instance, is extremely mild and superficial upon the temple, but much deeper and more rapid upon the eyelid or the alæ of the nose. Xeroderma pigmentosum is a freckle cancer in the young, and in the "second childhood" of senility we find again a tendency to develop freckles in which malignant disease has its origin. The black patches which grow around the eyelid in old women are especially liable to degenerative changes of this description. Cancer is emphatically a

product of senile tissues, and while parasitic origin may some day be demonstrated, all attempts so far are conspicuous failures. The process is a disturbance of cell-nutrition, of internal balance, quite independent of any external cause. It is, in the nature of it, a self-originating process in the senile period.

Inheritance, though not a very common factor, is unquestionably a potent one. Many of the cases of cancer at an unusually early age that I have seen have been in children of cancerous parents. The disease does not necessarily attack the same organ when transmitted, more frequently not. What is inherited is the tissue tendency to rebel, and this may take place in any organ or in connective instead of epithelial tissues, giving rise to sarcoma instead of carcinoma.

As to the increase of cancer, I think it is greatly overstated, though there can be little question that cancer is actually increasing slowly but steadily; simply for the reason that the proportion of those surviving to middle age, and those becoming liable to it, is increasing.—*Med. Press and Cir.*, Nov. 1899.

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**SIMPLE CASES OF PERICEMENTITIS.** By E. K. Wedelstaedt, St. Paul. Read before the Minnesota Association, July, 1899. Let us take a typical case. A lady walks into the office and says: "I have not slept any all night. There is some trouble with one of my teeth. It is longer than the rest, and every time I touch it with the other teeth or my tongue it hurts me." We find the trouble is in an upper right second bicuspid. It has a large mesio-occlusal filling in it. The patient says the pulp has not been destroyed. The first molar and the first bicuspid (the adjoining teeth) are in position. I will go into detail in handling this case. The gum is first examined to note its condition. The occlusion of the teeth is next examined. The rubber-dam is then applied over molar and bicuspids. Then I wash the dam and teeth with a disinfectant, obtaining as nearly as possible surgical asepsis. Very frequently I ligate the lame tooth with a piece of No. 25 Irish linen thread about eighteen inches long. Tension is often placed on the thread with good results. I should then take a sharp spear-pointed drill that was surgically clean, place it on the engine and drill a cavity through the filling if necessary, between the lingual and buccal triangular ridges. As soon as the pulp-chamber is entered, the drill would be

withdrawn and the cavity somewhat enlarged by using a sharp and surgically clean bur. If on removing the drill from the pulp-chamber it be followed by a flow of dark red blood, I should, so soon as the cavity in the crown of the tooth had been enlarged and the flow of the blood slightly checked, remove the pulp with a surgically clean broach. As soon as the hemorrhage had subsided, the pulp-canal should be wiped out with dry cotton until no signs of moisture were visible. Some oil of cloves should be introduced into the pulp-canal, the canal dressed, and the occlusal cavity in the crown of the tooth filled with gutta-percha. I do not recall at the present time ever having a patient return and complain of pain where this method had been followed.

Now let us look at this again. If on the withdrawal of the drill from the pulp-chamber, it be followed by pus (the color and variety do not make any difference), I would not introduce a broach into that canal. By the gentlest means at hand I would get all the pus out of that cavity possible. There should be no attempt made to cleanse it. On the contrary, let it alone. I should treat it with some oil of eucalyptus and with exceeding great care work it into that canal. Then place a small piece of cotton into the pulp-chamber and fill the occlusal cavity in the crown of the tooth with gutta-percha. Five or six hours later I would again adjust the rubber dam, get as near surgical asepsis as I could, remove the temporary filling and cotton and cleanse that pulp-canal. All the instruments that I should use would be as surgically clean as I could make them. The pulp-canal would be treated precisely as I have described in the first mentioned case, and the patient dismissed with instructions to see me, provided there was return of the pain. An appointment would be made to return one week later, when without further treatment I should fill the root of this tooth.—*Review, Nov. 1899.*

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**THERAPEUTIC VALUE OF ALCOHOL.** At the State Medical Association Dr. Thomas J. Hillis (*Medical News*, Nov. 4) said that until recently we had very little definite information as to the medical properties of alcohol. There had been a good deal of talk, mostly coming from those who were fanatically opposed to its use, and every good effect had been denied to it. Some even went so far as to say that it was not a stimulant. Not long ago Professor Atwater showed that it was used by the system as a food. There

was no doubt that in various allotropic modifications which it underwent in the chemical laboratory of the body it developed many other properties beyond that of stimulation. It was a tonic, heat-producing food of the most valuable kind. It had been abused and would be abused, but the abuse of a thing could not logically be argued against the proper use of it.

It was in conditions of fatigue particularly that alcohol was of special service. It was much better than coffee and produced its effect more rapidly. When great fatigue existed it was promptly burned up in the body and did not produce its ordinary intoxicating effect. Under these conditions from eight to ten ounces of it even might be taken and produce only slight stimulation. Like shavings in a glass furnace, it was burned up by the fire of muscular metabolism. Much of the abuse of alcohol by the medical profession had come from the fact that it had been given too early or too late in the course of a disease, or that too much or too little of it had been given. Its administration must not be left to the nurse, but must be assumed by the doctor himself. It must be regulated not according to any fixed rule, but according to the effect produced upon the patient.

The primary factor in the matter was the stomach. If the stomach took food well, then alcohol was not needed; but when food could not be taken, alcohol was of the greatest service. Especially it must never be given if it disturbed the stomach. One day it might be poison in a given case and the next day it might do good. Alcohol should never be taken at the beginning of a journey, for it lowered the temperature and increased the tendency to fatigue. At the end of a journey it was usually of very great service. At the beginning of diseases that were accompanied by excitement it would do harm. In exhausted conditions of the patient, especially when nutriment was not taken well, it was of the greatest service. It acted in four minutes, while beef tea required twenty to act and was not so efficient. Alcohol should never be taken immediately after meals, for it paralyzed the digestive ferment, coagulated the albuminoids, relaxed the walls of the stomach, and might stop the process of digestion entirely. Three hours after digestion, especially if the fatty acids were present, causing the condition known as pyrosis, alcohol would neutralize the fatty acids, stimulate the peristaltic action of the stomach, and get rid of the uncomfortable feel-

ing. Dr. Didama and Dr. H. O. Marcy dissenting, Dr. Hillis said that alcohol was under all circumstances the best tonic that we had, and that for it we should sacrifice willingly most of the drugs of the pharmacopeia.—*N. Y. Med. Jour.*

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**EXPERIMENTAL STUDY OF CEMENTS.** By J. E. Hin-  
kins, D.D.S., Chicago. Read before Chicago Dental Society. After  
I had experimented with a number of the American cements and  
found an abundance of arsenic in the oxid of zinc, I thought I had  
overlooked some important point, so went to Prof. Long of the  
Northwestern University Medical School, who has gone over every  
cement I have here, and has indorsed my experiments to be correct.  
I may say here that I have used the Marsh test, the Reinsch test,  
Fleitmann's test, the sulphureted hydrogen test, etc., and found  
arsenic in the specimens with all of the different tests. The Marsh  
test is considered the most universal test—that is, you can come to  
some conclusion as to the amount of arsenic found.

In examination of the cements I made separate tests of the solid  
and liquid of the original preparation, and also of the mixed pellets.  
I made the Marsh test of these various substances and, as confirm-  
atory of the stains secured, used the hypochlorite reaction, and the  
very sharp reaction with silver nitrate after oxidation of the stain  
with nitric acid. This is unquestionably the most characteristic of  
the primal tests. I have considered nothing as indicating the pres-  
ence of arsenic which did not respond fairly to this test. The sub-  
stances which gave the Marsh test will also give the Reinsch test.  
The best test for arsenic is the Marsh test, confirmed by nitrate of  
silver. The Reinsch test is not so distinctive, because the necessary  
confirmation is not so easily carried out.

*Fleitmann's test.* Generate hydrogen by heating to near the  
boiling point a strong solution of caustic soda or potash and some  
pieces of zinc. Drop into the test tube a little arsenical solution,  
and spread over the mouth of the tube a cap of filter paper moist-  
ened with one drop of solution of nitrate of silver. Again heat the  
tube, taking care that the liquid itself shall not spurt up onto the  
cap; the arsenic is reduced to arsenicum, the latter uniting with the  
hydrogen as in Marsh's test, and the arseniureted hydrogen passing  
up through the cap reacts on the nitrate of silver, causing the pro-  
duction of a purplish black spot.

The results of the different cements are as follows:

W. V-B. Ames, Metalloid.	{ Powder. Slight arsenic reaction. Liquid. No reaction.
S. S. White Co., Harvard.	{ Powder. No reaction. Liquid. "
C. Ash & Sons, Excelsior.	{ Powder. " Liquid. "
H. D. Justi & Son.	{ Powder. Faint arsenic reaction. Liquid. No reaction.
Britton, Vitrified.	{ Yellow Powder. Good arsenic reaction. Gray " " " Liquid. No reaction.
Hammond, Oxid.	{ Yellow Powder. Fair test for arsenic. Gray " No " " Liquid. Nothing.
C. A. S., Gelb.	{ Powder. No arsenic test. Liquid. " " "
Cleveland, Standard.	{ Powder. No arsenic reaction. Liquid. " " test.
Caulk's Diamond.	{ Powder. Strong arsenic reaction. Liquid. No arsenic test.
Fossiline.	{ Powder. Strong arsenic test. Liquid. Doubtful faint reaction.
Lynton.	{ Powder. No arsenic reaction. Pearl gray powder. Fair arsenic test. Liquid. No arsenic reaction.
Onyx, Johnson & Lund.	{ Powder. Strong arsenic reaction (trace of antimony). Liquid. No arsenic test.
Enamel, Johnson & Lund.	{ Powder. Strong arsenic test. (trace of antimony). Liquid. No arsenic test.

Lithos, Dental Protective Supply Co. Powder. No arsenic.

I have taken the utmost care with these reactions, and if there was any doubt I gave it to the manufacturer. For the pellets I found the tests to agree with those made on the powders. Of the powders I took about a half gram, for each test, except Lynton's, when the amount was  $\frac{1}{4}$  gram. The pellets were rather small for exact tests in several cases, but I gave the substance the benefit.

Inasmuch as most zinc ores contain arsenic, the presence in the prepared oxid almost of necessity follows. However, as there are some well-known ores in this country which are quite free from arsenic, manufacturers should be able to furnish an oxid without difficulty and at a moderate price.

I should not have been surprised at finding arsenic in the phosphoric acid liquids, as some of the acid of commerce is made by processes which would not exclude arsenic. The investigation of the acid liquid would be a very interesting question, as they seem to vary greatly in composition and behavior. I made no special tests in this direction, but noticed this fact incidentally when making the arsenic test.—*Review, Oct. 1899.*

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**TREATMENT OF PULPLESS TEETH BY IODOFORM FUMES UNDER PRESSURE.** By C. V. Vignes, D.D.S. Read before Southern Branch of National Dental Association, Feb. 10, 1899. This treatment was first practiced in 1891 by Dr. John C. Blair, then demonstrator of operative dentistry at the Louisville College of Dentistry. It was used by him and the students in over fifteen hundred cases during the time that I was there, and only two failures in obtaining the usual good results were recorded against it.

Iodoform is sublimated at a temperature of about 240 degrees F.—i. e., it passes directly into vapor, which upon cooling condenses again into iodoform less a small percentage of iodine that is set free, and which, being a strong disinfectant and antiseptic, and also very penetrating when in its vapor state, especially so when under pressure, goes to every part of the tooth under treatment, even into the tubuli of the dentin, disinfecting and rendering perfectly aseptic every portion of the tooth with which it comes in contact; and the iodoform crystallizing against the walls of the root-canal up to the apical foramen gives further assurance of asepsis.

To obtain the vapor and pressure required to force it into the pulp-chamber and root-canal, Dr. Blair devised an instrument probably used by many present. It is very simple of construction, consisting only of a chamber in which to put the iodoform crystals, and a rubber valve attached to press the vapor when generated by heat through a needle-shaped tube into the diseased tooth.

For convenience, have divided pulpless teeth under three heads:



1. Those containing a dead pulp that has given no trouble. 2. Those having a fistulous opening through the gums. 3. What is commonly known as blind abscess.

In the first apply the rubber-dam, or use any other method to keep the tooth dry, then make an opening into the pulp-chamber just large enough to insert the point of the needle of this instrument, and after heating the iodoform chamber over the alcohol lamp until by slight pressure of the bulb a thin vapor is emitted, place the end of the needle in the opening of the tooth and by pressure on the bulb force the vapor into the pulp-chamber. Use the instrument for five or six seconds, open up your cavity, and you will find that the vapor has penetrated the pulp-chamber and root-canal. Then you may clean out canal, use instrument again, and proceed to fill immediately—sure of no aftertrouble.

Under heading No. 2 use the instrument as before mentioned, and try to pass the vapor through the tooth out of the fistulous opening. If you succeed in doing this (and you can in most cases) one treatment is enough, and you can go on and fill the tooth even if there is slight inflammation of the gums and surrounding tissues.

Where you suspect a blind abscess the treatment is the same, but I should not advise immediate filling. Use some temporary stopping and have the patient return in two or three days, when you can treat again and fill at the same sitting.

Again, I will point two instances where the use of iodoform in this manner is very effective: 1. Where you fail after repeated attempts to remove all of the pulp from the root-canal, you can so desiccate and encase the remaining portion in iodoform as to render it inoffensive and make it form part of the root-filling. 2. You can fill with a solid deposit of iodoform the very small root-canals better in this manner than you can with any other material, and this done, you have an ideal root-filling—one that is together impermeable and antiseptic.

There is, however, one slight objection to this method of treatment, and that is the disagreeable odor of the burning iodoform. To obviate this I used, at the suggestion of Dr. Montgomery of Chicago, equal parts of ground coffee and iodoform, but found that while I destroyed in a marked manner the offensive odor, I failed to obtain the happy results that I had without the coffee. The fumes with the coffee become laden with carbon, lose their penetrating

character, and cannot then be forced into the small root-canals, or even after a time through the needle of the vaporizer.

In treating teeth in this manner three rules should be followed: 1. Always keep the tooth absolutely dry. 2. Never attempt to pass a broach or any other instrument up the root-canal before first applying the vapor. 3. Don't use too much heat in generating the vapor, for this will liberate more iodine than is wanted, which will discolor the tooth and necessitate the use of hypersulfate of soda to remove the discoloration. Thus in a few minutes you can accomplish with certainty what requires patience and sometimes weeks of tedious work to do by any other method.—*Cosmos*, Nov. 1899.

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SEQUELÆ OF ADENOID OR LYMPHOID TISSUE IN THE NASO AND ORO-PHARYNX. By Wendell C. Phillips, M.D., New York. Read before New York Odontological Society, April 18, 1899. Hackneyed as the subject may seem to the members of this society, those who are so often brought face to face with the resultant conditions, even to retarded mental development, bone deformities and deaf-mutism, should continue to exhibit the danger signal until all practitioners of medicine everywhere, not excluding your own profession, come fully to realize how dangerous they are to child life. One day's experience in any clinic for aural or nasal diseases will tell a convincing story of the results of disease of these glandular structures.

A concise description of the chain of lymphatic glands found in the naso and oro-pharynx has been given by Glutsmann: "The lymphatic tissue appears in an aggregated as well as disseminated form, and is distributed uninterruptedly throughout the pharynx and naso-pharynx." "Waldeyer very appropriately gave it the name of lymphatic ring of the pharynx." "Its position is almost vertical, and beginning at the vault of the naso-pharynx with the pharyngeal or Luschka's tonsil, it extends to the orifice of the Eustachian tubes, where we have a larger aggregation of follicles, the tubal tonsil." "Turning downward along the posterior edge of the soft palate and around the posterior pillar, it reaches the faucial tonsil and across the base of the tongue called the lingual tonsil" or tonsil of the tongue.

It must be remembered that these structures are normal to these parts; that in the healthy condition they are not visible to the eye,

not even the faucial tonsil, and it is only when they become permanently enlarged as a result of disease that they become important factors in producing the many and grave diseases of the surrounding structures.

Disease of these glands is found in all climates and all countries in varying degrees, and there is much variance of opinion as to cause. There can be no doubt that heredity plays an important *role* in causation, enlargement of these glands having been observed in children born even before term. Frequent colds and neglected catarrhs may also be considered as causes. They at least greatly aggravate a case whose tendency is to hypertrophy. It is of course a disease which manifests itself during child life. It is much more common than is usually supposed, and many cases which have sufficient enlargement of the glands to produce serious trouble, especially to the ears, do not manifest the marked symptoms supposed to be characteristic of the disease. To merely mention same will suffice here. Facial expression, mouth-breathing, restless sleep accompanied by snoring, sucking of air, and occasional stopping of the respiratory act, dead voice, difficulty in eating or nursing, anemia from lack of proper oxygenation of the blood, excessive discharge of mucus or muco-pus from nose and throat, frequent colds, almost constant bronchitis, deformity of chest walls, dull and listless appearance, suppurations of the middle ear, and a catarrhal inflammation of the middle ear, accompanied by a peculiar bluish-red color of the membrana tympani, which I believe to be almost pathognomonic of the disease; and in the later stages the various deformities of the superior maxillary bone.

The presence of great masses of adenoids in the vault changes to a large degree the normal physiological functions of the nose and nasopharynx. Instead of a respiratory organ it becomes an obstruction to respiration and a general disturber of the process, and the epithelial changes in the mucous membranes of the nose and nasopharynx finally result in a chronic catarrhal development. In aggravated cases the operation for removal brings about such a marked relief of the symptoms, especially those relating to sleep, that during the first few nights following the parents become alarmed at the extreme quietness which prevails. One mother remarked that the child was so still that she thought he must be dying or dead.

The diagnosis of enlargement of the faucial tonsils is easily made by simple inspection. In adenoid cases it is not so easy, unless one has had much experience. There is usually some symptom which leads to an examination. It may be the facial expression, the voice or discharging ears. Most authorities recommend that the diagnosis be made by introducing the finger into the vault, and by so doing feel the glandular mass. This procedure is very painful, makes the patient gag and strangle, and also makes the little patient one's enemy for life. I rarely find it necessary to adopt this method. Instead, by a little gentle persuasion one can make a far better examination and diagnosis by means of the tongue depressor and a small mirror. This procedure is not painful, makes the patient a friend; and gives confidence to allow any further treatment of the throat. There are many cases which present symptoms so marked that a positive diagnosis may be made without resorting to either method.

It has been proposed to make a diagnosis by means of the Valsalvan method; that is, by attempting to inflate the ear by holding the nose, failure to accomplish the act indicating the presence of adenoids. This method is mentioned only that it may be condemned, as the danger of forcing some of the ever-present infective secretion into the Eustachian tubes, where it is prone to excite severe inflammation, renders it an unsafe procedure.

*Sequela.*—Of the various diseased conditions depending upon and resulting from disease and enlargement of the glands in the naso and oro-pharynx—i. e., the adenoids and the faucial tonsils—a few may be mentioned. The general health is always more or less impaired, there is apt to be retardment of the general growth and physical development of the child, and anemia. This results from the lack of proper oxygenation of the blood due to the reduced quantity of air, a condition which continues both night and day. It is also due to the frequent colds, the unhealthy secretions, and the almost constant bronchitis to which these patients seem to be subject. Among the most marked results of operation are the increased weight, better color, and improvement of chest conformation.

In enlargement of the faucial tonsils we have the attacks of catarrhal, follicular, or suppurative tonsillitis, and later on a tendency to a degeneration which might be termed cheesy. These masses of cheesy-looking, foul-smelling material are found deeply imbedded in the crypts.

Chronic catarrh of the nose and throat may be looked for. In severe cases there occasionally may be found considerable deformity of the chest. The sternum becomes prominent, and the sides of the chest fall in, giving the pigeon-chested conformity. But even where no such deformity exists there is a general arrest of development. After operation the gain in flesh is very rapid, often amounting to several pounds in a single month.

Of all the accompanying and resultant affections from adenoids and hypertrophied tonsils, that to the ear is fraught with the gravest dangers and most serious consequences. It may be either a catarrhal deafness or a suppurative process. In either case the condition is serious, threatening the child with partial or total loss of hearing, unless prevented by operative interference. These growths are the most potent causes of attacks of middle ear suppuration, and when such attacks are frequent one may almost be sure to find the cause in the naso-pharynx. That they are many times the cause of total and permanent deafness in children has been proven time and time again, and deaf-mutism from this cause is a deaf-mutism which might have been prevented if parents, dentists and physicians could have been alive to its seriousness.

Frankenberger claims that the percentage of adenoids in deaf mutes is much higher than in the general run of children, and he substantiates his claim by a report of the examination of 159 deaf mutes. Adenoids were found in 94 or 59.49 per cent, whereas children in general have adenoids in the ratio of about 6 per cent. This remarkable frequency of adenoids in deaf mutes he considers as certainly not accidental, but that they stand in some causal relation to deaf-mutism.

The ears of all public school children should be tested, and such recommendations made to teachers and parents, especially if adenoid growths and hypertrophied tonsils exist, that the child may be relieved by operation and if possible cured. Schæling has said, "The results upon its later mental development of a marked diminution of hearing in a child are, unless compensated for by other instruction, decided and permanent, affecting the understanding, character, self-confidence, and at a later period the ability of self-support, mental tools the possession of which is valuable and the want of which can never adequately be supplied."

As to the effect of enlarged faucial tonsils and adenoid tissue in

the pharyngeal vault upon the development of the superior maxillary bone and the conformation of the teeth, opinions vary with good reason. It seems to this writer that too much stress has been laid upon these conditions as causative factors, both by dentists and nose and throat specialists. So far as the faucial tonsil is concerned, it can have but little effect upon the condition mentioned except in the severest cases and where the hypertrophy is very great.

It does not seem feasible to argue that merely because of the fact that the mouth of a child is more or less constantly open when suffering from adenoids, the atmospheric pressure within the mouth would push the hard palate upward, as Hooper suggested. I certainly should not consider a V-shaped arch a diagnostic sign of adenoids, while, of course, it might lead one to search for them. Talbot says: "There are many cases of contracted arches where mouth-breathing does not exist; there are also many cases of normal arches where mouth-breathing is present." Eames remarks that "it has been said that adenoid growths in the pharyngeal vault cause irregularities of the teeth. I do not believe this to be the case, but rather that the dental irregularities are only another expression of the same cause that operates to produce the adenoid growth. In other words, there is one cause common to both, yet this cause may not be able in all cases to produce both. The bone-developing, vital movement may be strong and active by inheritance, while the lymphatic glandular system is weak."

Bryan states that "a brief reference may be made in connection with mouth-breathing to the changes in the arch of the hard palate, which in the very young becomes altered, assuming an acute bow or V-shape." "This deformity results from a combined pressure of the buccal muscles exerted on both sides, and a column of air constantly striking the hard palate." "Kooner distinguishes between the alterations of the upper jaw of children who have suffered from nasal stenosis before the shedding of the deciduous teeth and those which result from nasal stenosis during the change of teeth." "In the first instance there occurs generally the cupola-shaped elevation of the palate; the alveolar border, which naturally forms a semicircle, assumes the form of an ellipse, but there is no change in the position of the teeth." "If the nasal stenosis exists at the time of the change of the teeth then the lateral alveolar borders are approximated, while the anterior border is pushed forward, and the high

arch of the palate increases until it encroaches upon the cavities above. The teeth in those cases assume a very irregular shape."

A long experience of active work has led me to conclude that deformities of the superior maxillary bone accompanying adenoids and hypertrophied tonsils are the exception rather than the rule. In other words, one will find many cases which have adenoids and hypertrophied tonsils to a degree sufficient to require operative interference, to one which also has the jaw deformity.

Again, it is not an uncommon thing to find deformed jaws in cases which have never had adenoids or hypertrophied tonsils. I do not wish to be understood as taking the position that these conditions are never the cause of deformities of the jaw and teeth, but, inasmuch as the deformities mentioned are found both where they are present and where they are absent, it would seem fair to contend that these are far from being the sole cause. I would further suggest that in order to produce marked deformity of the jaw and teeth the adenoids or tonsils, or both, need to be so greatly enlarged as to produce almost entire mouth-breathing, and even then the condition would need to be present some years to produce such deformity.

It is certain that an important part played in this peculiar bone deformity is the general lack of osseous nutrition. This may be serious enough to come under the general term rachitis, or it may be just on the border line. The presence of marked adenoid development may so interfere with the general health and nutrition of the body as to introduce an element of weakness into structure and growth of the bone. This state of affairs plus abnormal breathing would tend strongly to deformity. It would seem that heredity is no mean factor in the causation of high-arched palate and crooked teeth. One may inherit a Roman or a flat nose, high cheek-bones or a round facial contour. Why not a V-shaped hard palate?

*Removal of Adenoids.*—If the faucial tonsils are large enough to interfere with respiration or deglutition, or if they are the seat of frequent inflammatory attacks, they should be cut out. In childhood the operation is almost entirely free from danger. It is not necessary to administer an anesthetic for a tonsillotomy. . . . If adenoid or lymphoid tissue be present in the vault of the pharynx in either small or large quantities, it should be removed with the least possible delay. . . . An anesthetic should be administered unless there exists some good reason not to do so. . . .

Skillfully performed, there is but little danger in the operation.

It can and should be done rapidly, and the first instrument introduced should be of such a nature that nearly the whole mass may be taken at one bite. For this strong, heavy forceps are the best. This should be followed by the curet, and finally the finger may be introduced for the double purpose of ascertaining if all is removed and of tearing out any odds and ends remaining. All of this need not consume more than about one minute of time, but thorough removal is of the utmost importance. . . . The after-treatment is simple. Rest in bed for from twenty-four to forty-eight hours. The patient should remain where he is for the above time.

Parents are gradually becoming educated to detect the symptoms of these growths, but wide-awake dentists have an unusual opportunity to detect the symptoms, and with it comes a duty to add to their already useful avocation that of aiding parents to see the importance of subjecting their afflicted children to operative interference, and free them from these conditions with their long train of attendant symptoms and serious results.—*Cosmos, Aug. 1899.*

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#### FATHER NOT OBLIGED TO PAY FOR TREATMENT.—

Edelman vs. McDonnell is the title of an action that was brought to recover payment of a bill for medical services. Father and son were defendants. The services consisted of divers consultations, house visits, office visits, surgical operations and surgical dressings extending over a period of six months. They were rendered in pursuance to the request of the son—who was not a minor—while the first consultation was in progress. But the plaintiff alleged that at divers times thereafter during the treatment the father made statements to him which led him to believe, and from which he did believe, that the father would pay for the treatment, and that he relied on such statements, and gave credit to the father as well as to the son. However, the statements and promises of the father were not in writing, and while the court rendered judgment against the son, it also rendered judgment against the plaintiff and in favor of the father. From this latter the plaintiff appealed. But the supreme court of California affirms the judgment of the lower court. First of all, the supreme court says that it was not shown that such statements were made as would justify the belief that the father would pay for the treatment, or that he intended that they should



be so understood, or that the services would not have been rendered had such statements not been made. Perhaps, the court suggests, the statements consisted in expressions of interest in the case, or were express oral guarantees of his son's solvency. Then, it says, it was not found what services were rendered after the promises to pay were made at divers times during the treatment. The first contract of employment having been made with the son, these promises were only to pay his debt. Again, the court points out that it did not appear that the son was living with his father or was being supported by him. For aught that appeared they may have been living apart for years, and the son may have had his own family and business. Had the father been taking care of him, and actually supporting him as though he were still a member of his family, as minor children generally are of their parents' family, the court adds, the presumptions might have been very different. It also remarks that it understands that a contract which a physician makes with his patient whose case he undertakes is usually one contract for the entire work. This, however, it pronounces immaterial in this case, because, if the alleged promises were sufficient to make the father responsible for the visits after such promises, still it did not appear what services were rendered.—*Jour. A. M. A., Dec. 1899.*

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**RELATIONSHIP BETWEEN INSANITY AND THE USE OF ANESTHETICS.** By Dr. G. H. Savage, London. He pointed out that any drug which produced temporary mental disturbance might produce disorder of a more lasting nature. Anesthetics producing delirium might give rise to mania or, producing insensibility, might cause stupor and mental confusion. Anesthetics rarely produced insanity except in patients who had had previous attacks, or who were predisposed by exhaustion or allied states. Anesthetics alone might produce insanity, or the production might depend upon the operation and the anesthetic. In some cases insanity had followed the administration of an anesthetic and the application of some dressing, such as iodoform. Dr. Savage did not think that one anesthetic was more likely to cause mental disorder than another, as he had seen mania following the administration of gas for slight dental operations. In a certain number of cases he had seen insanity following the administration of anesthetics during childhood. He had scarcely ever seen simple melancholia or delusional

insanity following the use of anesthetics, but stupor lasting for some weeks had occurred in several cases, and he was inclined to think that greater risk of such disturbance followed the use of anesthetics in operations about the bladder and rectum than in other operations. The administration of anesthetics to patients who were subject to recurring attacks of insanity was associated with considerable danger, and examples were given to prove this. Dr. Savage also gave some examples of the redevelopment of mental symptoms which were passing off when an anesthetic was given to a convalescing patient. In his experience little or no danger resulted from the administration of anesthetics to those who were already insane, and he maintained that it was rather a question for the surgeon than for any one else as to whether an operation should be performed on an insane patient. Naturally in maniacal cases it would be risky to perform any operation. So far as the treatment of insanity by the administration of anesthetics was concerned, he could say only that it had failed in all cases. Maniacal patients, though quiet at the time, returned to their maniacal excitement so soon as the anesthetic was removed, and sleep produced by anesthetics was temporary and of little service. In a few cases of extreme weakness following maniacal excitement it was of value. Therefore he could say only that anesthetics, though they might cause insanity, might relieve for a short time if given to the insane; that there was great danger to patients who had had previous attacks or who were very unstable; but that the administration of anesthetics to the insane might be looked upon as harmless.

Discussion. *Mr. W. Tyrrell* related the case of a little girl who, after coming round from the effects of chloroform, and being reasonable for an appreciable time, gradually fell into a state of stupor in which she remained for three days. Then she suddenly awoke as if from a dream, and had remained quite herself since.

*Mr. H. C. Crouch* related a case in which, after the administration of gas and ether for a dental operation, the patient became violently delirious and gradually passed into a state of dementia, from which he never recovered, but eventually died in an asylum. All the children of this man developed neurotic taints.

*Dr. J. F. W. Silk* thought there was some association between the delirium after ether anesthesia and the absence of vomiting. He had seen several cases of mania following excision of the rectum.

*Dr. Savage* pointed out that when the intellectual level of the patient had been reduced by an anesthetic any delusion which might be developed was apt to persist as a kind of mental scar. He thought that cases of temporary delirium might be looked upon as connecting links in the following series: loss of consciousness, loss of higher control, delirious conceptions, and mania. Melancholic exhibitions were unusual after anesthesia, except, in those who had previously suffered from melancholia.—*Dental Record, Dec. 1899.*

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**PEMPHIGUS CHRONICUS VULGARIS OF THE LARYNX AND MOUTH.** By J. H. Bryan, M.D., Washington, D. C. The following brief sketch of a case of pemphigus chronicus vulgaris affecting only the mucous membrane of the larynx and mouth is of interest on account of the rarity of this affection.

In this country, at least, it must be extremely uncommon, for I am familiar with only one or two reports of cases, but the foreign literature is much more replete, especially that of the Germans.

Mrs. ——— consulted me in October, 1898, complaining of certain indefinite sensations in the region of the larynx, and stated that for six months or more she had had trouble with the throat. The attacks were frequent but not of long duration, the principal sensation being that of a foreign substance in the larynx.

She had always enjoyed good health, save for occasional attacks of muscular rheumatism, which have not been severe enough to occasion her much inconvenience. Her appearance gave the impression of a well-nourished person, although a little paler than usual.

The examination showed the nose, nasopharynx and pharynx in good condition; but with the mirror a small white membranous deposit, about a quarter of an inch in diameter, was observed on the laryngeal surface of the right half of the epiglottis.

While in the act of making a local application with a cotton-tipped applicator, this deposit was detached and brought away on the cotton. The membrane beneath was red, but it did not show any loss of substance, such as is met with in the various forms of ulceration that affect mucous surfaces. I sent this piece of membrane, which was of considerable thickness, to Dr. Jonathan Wright, requesting him to make an examination of it for me, at the same time venturing the opinion that we had in all probability a case of simple membranous laryngitis to deal with. I tried also to reassure the patient

her affliction would soon be a thing of the past. In less than four days she returned to the office saying the trouble had returned, and she felt it on the left side of the throat, referring to the larynx. On examination a deposit of membrane of the same character and about the same size was observed on the left half of the laryngeal surface of the epiglottis—the seat of the former deposit looked perfectly normal.

About this time I received a statement from Dr. Wright, giving it as his opinion the case was one of chronic pemphigus vulgaris, and also giving me the results of his microscopical and bacteriological examinations, which were as follows: Under the microscope the membrane showed a fibrinous deposit containing numerous round cells, but no epithelium; staining with Gram's method showed a large number of cocci, but no bacilli.

Up to this time I was not familiar with this condition, never having seen a case before. There have been frequent outbreaks since the original observation, the membranous deposit making its appearance on one-half of the epiglottis, disappearing in a few days to reappear on the other half of this cartilage.

The patient denies ever having any cutaneous disease. About three weeks ago she complained of feeling much worse, especially of being very nervous and weak. The examination revealed a small deposit on the epiglottis, and for the first time the gums were noticed to be quite red and swollen. There was a membranous deposit on the upper left half of the gum about an inch in length, and a smaller deposit on the lower gum just below the incisor teeth. She was a little more anemic looking, and complained of a slight swelling of the lower extremities.

An examination of the heart showed nothing abnormal, except that the sounds were not quite so clear as they should be in a vigorous person. A urinary analysis showed a slight trace of albumin with a few blood-corpuscles and pus cells, and a few granular hyaline casts. An examination of the blood showed nothing abnormal.

Pemphigus is a varied form of skin affection characterized by the formation of bullæ, and whether it be of the benign or malignant variety dermatologists consider it a very rare disease. The eruption on the mucous membrane of the upper air-passages is noticed in all forms of the disease, being more common in the chronic than in the acute variety. It is generally secondary to the skin eruption, grad-

ually extending into the mouth, pharynx, larynx, and into the trachea and bronchi, and also occasionally affecting the conjunctiva. There are, however, a number of instances in which the eruption makes its appearance on the mucous surfaces primarily, as in my case. Generally the appearance of the eruption on the mucous membrane is characterized by the formation of a bleb, which is filled with a yellowish fluid such as we find in the bullous formations on the skin. The bleb finally ruptures and a milky white membranous deposit remains. It is questionable whether the appearance of the eruption on the membrane is always accompanied by the formation of bullæ. In my case I have never been able to recognize them, although the patient is able to determine the time of the appearance of the eruption on the membrane by a prickling sensation in the larynx, and she has been in my office within half an hour of this time.

According to Chiari, the bullæ are the result of a rapid exudation, while in a slow exudation it simply causes a raising and discoloration of the epithelium, giving the grayish deposit the appearance of a diphtheritic membrane. Acute pemphigus of the mucous membrane is always accompanied by a high fever, while the chronic variety is generally without fever and occurs in those who feel otherwise well.

The diagnosis of pemphigus of the larynx, when it is secondary to the skin eruption, offers little or no difficulty, but it is quite another matter when it makes its appearance primarily on the mucous membrane. It is to be distinguished from diphtheria, tuberculosis, syphilis, herpes of the larynx, and finally the caustic effects of acids or lye.

The etiology of pemphigus is extremely obscure, the majority of authors holding to the tropho-neurotic theory. Microscopic and bacteriological examinations have been made in Mandelstamm's, in Miller's; and in my case, all of which were of a negative character.

This is essentially a chronic disease and may last months before disappearing or wearing the patient out. Local applications have no influence whatsoever, alkaline washes probably giving the patient some relief from the constant irritation in the mouth and larynx.

The only remedy which is supposed to have the slightest influence on the disease is arsenic, either in the form of the Asiatic pill or Fowler's solution carried to the point of tolerance. This latter

remedy has acted well in my case. Patient has not had an outbreak in larynx or mouth for two months.—*N. Y. Med. Jour.*, Nov. 1899.

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**SALIVARY FISTULA.** By Dr. G. Frank Lydston, Chicago. The first case I wish to report is one of salivary fistula, cited for the purpose of outlining rather a novel procedure for the operative cure of the fistula. The patient was a man 25 years of age, who had been under treatment for syphilis, and was referred to me for what was believed to be a gumma in the region of the parotid gland. On examination the tumor proved to be a salivary cyst. I proceeded to extirpate it, and on the second day after operation I discovered, much to my disgust, that the cyst communicated, in all probability, with Steno's duct. I had substituted a salivary fistula for the tumor. Some three months later the patient, having stopped treatment for two or three weeks after the operation, returned to me. Cauterization and repeated suturing had been done by a surgeon who had endeavored to heal the fistula. I suggested a novel operation, which consisted of an attempt to reestablish the continuity between the bottom of the fistula and the normal opening of Steno's duct. After freshening the edges of the fistula, I passed a large, pointed, straight probe, armed with strong silk obliquely through the cheek and made it emerge from the normal opening of Steno's duct inside the cheek. I fastened a small soft catheter to the ligature and drew it through the mouth. On the end of the catheter I fastened a single strand of silver wire which was drawn through the distal extremity of the catheter in such a manner as not to occlude its opening, thus leaving its lumen free. I countersunk the catheter to the depth of half an inch in the tissues of the cheek, and fastened the wire to a small lead plate, after stitching the fistula with catgut sutures. Beneath the plate was applied a dressing of iodoform gauze. The free end of the catheter was made to emerge from the mouth. From that time on saliva flowed freely from the mouth. At the end of ten days the wire was cut and the catheter removed. The fistula was found to be absolutely healed. No further trouble from the fistula was experienced. Whether the probe had traversed Steno's duct, I cannot say, but more likely I made a new fistula through the cheek, emerging in the mouth, and simply causing the fistula to open as nearly as possible at the normal opening of Steno's duct.—*Jour. A. M. A.*, Jan. 1900.

## RESECTION OF SECOND BRANCH OF TRIGEMINUS.

Dr. Alexander Frankel, Vienna. (*Centralblatt fur Chir.*, 1899.) In some cases in which resection of the second branch of the trigeminus at the foramen rotundum is indicated, Lucke's procedure, as modified by Braun, is probably most frequently employed. The author used the method described below in a case which eighteen months before had undergone a neurectomy at the site of the infra-orbital foramen. His attention was first called to the procedure by Dr. Julius Tandler, prosector under Prof. Zuckerhandl. The operation was carried out upon the cadaver, then upon the case mentioned. The result was very satisfactory, and the author recommends the procedure in that it accomplishes its purpose without leaving a visible scar.

The steps in the procedure are as follows: (1) Separation and paring down of the mucous membrane of the upper jaw over the fossa of the cuspid. This is carried on in a lateral direction until the zygomatico-alveolar crest is reached, the upper lip being strongly retracted. (2) An opening is made into the antrum of Highmore by turning up a flap. (3) Inspection of the antrum with the aid of artificial light, the nerve being diaphanous at the lateral portion of the posterior wall. At the nerve site the mucous membrane is incised and lifted out of the way with a slender periosteal elevator. (4) An opening is made by chisel or trephine in the upper and posterior angle. This brings the nerve into the field of operation. It is caught with a small blunt hook and its course followed to the inferior orbital fissure in one direction, and to very near the foramen rotundum in the other direction. It is put upon the stretch and resected. Finally, the flap on the anterior wall of the antrum is closed, leaving room for a small strip of iodoform gauze to serve as a drain for the antrum, and the oral mucous membrane is partially closed. Hemorrhage is practically nil, slight compression sufficing to control it. The procedure is chiefly to be recommended because it avoids scarring; there is no vessel to be injured such as the internal maxillary; it is as rapid as it is reliable. There is some disadvantage in the relative difficulty experienced in lighting the deepest portions of the antrum, but this is readily overcome by means of the electric headlight. The orbit may be opened accidentally in attacking the posterior wall of the antrum.

Carnochan, an American surgeon, used a similar method some

thirty years ago. He, however, made a skin incision and followed the nerve back from the infraorbital foramen. This procedure was followed by such septic complication, as this was in preaseptic days, that the procedure was abandoned. At present there should be no objection to the method. The author's case suffered a slight catarrh of the antrum as the only complication of the operation.

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**PROPHYLACTIC INOCULATIONS.** By Edward F. Wilmoughby, M.D., London. The progress of bacteriology during the last few years has been so rapid that it is almost impossible for any but those who are actually engaged in the work of the laboratory to keep abreast of the advance of the science. Working hypotheses either become established facts or are set aside by the very discoveries they have led up to, almost before their true character has been generally apprehended. One result of this advance all along the line is that the public as represented by the lay press, and probably the majority of the medical profession, when the latest discoveries find a practical application in the prevention or treatment of disease, are apt to interpret them in the light of the state of the science and the knowledge of several years past, and to ascribe to particular procedures the characters and effects of others more familiar to them, but with which they have little or nothing in common. They are fully aware of the permanent or long duration of the protection against small-pox conferred by vaccination, and probably conclude that inoculations against cholera or diphtheria must be equally lasting; or finding that the immunity is only temporary and transient, are inclined to doubt its reality altogether. They do not clearly distinguish between immunization by the induction of the actual disease in an attenuated or modified form, and that imparted by the injection of products of the bacilli, which, so far from producing the phenomena of the disease in a milder phase, have a directly opposite and antagonistic action; and fewer still have any conception of the difference between antibiotic and antitoxic agents, the one class causing the death of the bacilli, and the other neutralizing or destroying the poison independently of any action they may or may not exert on the bacilli themselves. There is, in fact, nothing improbable in the statement that the bacilli of diphtheria have been cultivated in the (solution of) antitoxin, though to such men it would appear to prove the whole doctrine of serotherapy a delusion;



and the fact, well known to experts, that quantities of (washed) cultures of tetanus bacilli may be introduced into a (healthy) wound, but that the addition of a little lactic acid or of a culture of bacillus prodigiosus will induce tetanic phenomena, would seem to prove that these were due to the accessories rather than to the reputed specific microbe; and lastly, the indisputable fact that many persons in seeming health carry the bacillus of diphtheria in their mouths for weeks together without any infection or ill-effects to themselves is in itself calculated to provoke incredulity as to the existence of an essential and strictly causal relation, and to suggest a merely casual connection or association between the bacillus and the disease.

The products of bacteria by which the phenomena of infection and of immunity are induced belong to two distinct classes, ptomaines and toxines; the former being alkaloids, of complex but definite composition like those obtained from the vegetable world, capable of being isolated in a state of purity, and secondly of albumoses, akin to those produced in the process of peptic and tryptic digestion, of the chemical constitution of which little is known, from the impossibility of isolating them from the inert albuminoids in and with which they are held in solution, and from their tendency to the total or partial loss of their properties in the act of drying. An interesting fact may be here mentioned in passing—viz., that the venom of serpents, which is an albumen or an albumose, though a secretion of the parotid gland and not a product of bacteria, is susceptible on the one hand of being digested by the action of ptyalin, papain, pancreatin and pepsin, so as to be rendered inert when swallowed, and on the other is capable of acting as a peptonizing agent on other albuminoids, etc.

Ptomaines and toxines are alike poisonous, and alike vary greatly in their virulence; but ptomaines are exclusively products of the bacteria of putrefaction, under circumstances involving the exclusion or a very scanty supply of oxygen. The virulence of some almost passes belief, while others are scarcely poisonous in the ordinary meaning of the word. The toxines are for the most part less virulent than the ptomaines, that of tetanus being the most, and those of diphtheria and probably the plague coming next in their virulence. The power possessed by many bacteria of dissolving and digesting animal matter plays probably an important part in their action on the living body. Of one hundred and forty kinds observed

by Claudio Fermi, forty liquefied gelatin and five dissolved fibrin, while a large number, though cultivated in serum, gelatin and broths, in the entire absence of starch or sugar, yielded diastatic ferments; those of anthrax, cholera, and Finkler's and Prior's being among the number. But while neither class of ferments is formed by bacteria grown in nutrient *salts* only, the presence of starch is *most favorable* to the formation of diastatic ferments, and of gelatin to that of the peptonizing, the conditions of temperature, reaction, etc., being within the limits requisite for each particular case.

Some of the poisons produced by bacteria act simply as do the vegetable alkaloids, especially muscarine, as the gland poison of snakes, or induce indefinite symptoms of gastro-intestinal irritation. Others are pyogenic, exciting local inflammation, with the formation of pus. Among these the general tendency of streptococcal inflammation is to a wide diffusion of the suppuration, while that of the staphylococcal is to circumscribed abscesses, the process being limited by the fibrinous exudation peculiar to their action. In like manner the density of the so-called false membrane in diphtheria will "vary from the consistence of cream to that of wash leather," just as streptococci or staphylococci predominates, Löffler's bacillus, which alone induces the remote effects, the degeneration of the medullary axes of nerve-fibres, and of the muscular tissue of the heart, taking little or no part in the exudation.

A distinction has been made between toxic and septic poisons, the former being those produced locally by the bacteria, and absorbed and diffused thence by the lymphatics; the latter being formed everywhere by the bacteria, which multiplying in the blood pervade the entire circulation and penetrate the tissues, instead of remaining confined to certain glands or organs, as the spleen. The distinction, however, is somewhat artificial, some bacteria producing one or other poison under different conditions, or even apparently both under the same.

Immunity is the power possessed or acquired by the organism of producing or causing to be produced substances having (1) the property of causing the death or of inhibiting the growth of the special pathogenic bacteria, or (2) of destroying or of neutralizing the action of the toxins; and immunity of either kind may be (1) natural or congenital to the race or the individual, or (2) may be acquired by the animal having passed through an attack of the disease

or having been subjected to certain processes of inoculation with prophylactic preparations; and the immunity of either kind and whensoever derived may be but transient and temporary or so far permanent as to be practically of lifelong duration.

Natural immunity is possessed by certain animals towards certain diseases, sometimes in virtue of the high or low temperature of their blood. [The immunity of birds to anthrax can be overcome by lowering their temperature, and in fish the bacillus of tubercle induces a rapidly fatal disease, but loses its virulence towards warm-blooded animals.] In others it is as inexplicable as their tolerance of morphin, atropin, etc., the resistance being manifested in some towards the growth of the bacilli, the tolerance in others in respect of the toxins.

Acquired immunity, temporary or permanent, follows an attack of certain diseases, small pox, scarlatina, measles, typhus and yellow fever conferring a lifelong exemption, and diphtheria one of little more than a month's duration. But it may be imparted artificially by inducing a modified form of the disease, as in vaccination, the vaccine virus being not that of a disease peculiar to the cow, but simply variolous virus so altered by cultivation in the organism of a bovine or equine animal to which it is foreign as to have lost most of its virulence, and becomes communicable by actual inoculation only, enthetic instead of contagious; or by the attenuation of the virus by cultivation under unfavorable conditions, as in the living bodies of other animals, or in culture fluids, or at temperatures partially inhibiting the normal development and vital functions of the bacteria. Such are the Pasteurian inoculations against anthrax, rabies, rouget, etc. But from the impossibility of accurately standardizing the cultures, and the differing susceptibilities of individual animals, there is always the risk of either failing to obtain the requisite degree of resistance, or of giving a dose that shall prove fatal; so that, however useful with brutes, whose lives have only a pecuniary value, the risks attending these inoculations preclude their employment in the case of man. Immunity may also be conferred by injections of the toxins, but it is not so lasting as that following injections of living bacteria and requires a certain time for its acquisition. It is easier to render an animal immune to fatal doses of living bacteria than to those of toxins, and the former immunity does not involve the latter, though latter does the former.

There is one more way in which immunity may be imparted—viz., the injection of the serum of animals highly immunized by other means. Of this the antitoxin treatment of diphtheria is the type, that of tetanus and the Italian method of treating the plague being the same in principle, though they have not as yet attained equal certainty and accuracy. This procedure, consisting in the injection not of the toxin, but of the antitoxin, not of the disease in even the most attenuated form, but of its very opposite, possesses advantages over every other, and being conceivably available in respect of every specific disease that of itself tends to a spontaneous termination within a definite period, and of all those that confer immunity of longer or shorter duration, holds out prospects as to the prevention of infection and the arrest or cure of disease, the importance of which it is scarcely possible as yet to estimate.

The resistance of an animal to infection is a complex effort involving phagocytosis, or the action of the leucocytes on the bacteria, towards which they are attracted by the phenomenon of chemiotaxis, and which they take into their substance and devour as an amoeba does the particles on which it feeds; a process which takes place in every exposure to infection, the struggle ending in favor of the leucocytes, or of the bacteria. It is thus that a man, who after having long resisted exposure to infection, as in a fever hospital, at length succumbs, when by fatigue, hunger, or any depressing circumstance the vitality and energy of his protoplasm has been lowered. The serum in its normal state is possessed of a certain bactericidal property, in virtue, probably, of some substances formed by the leucocytes, called alexins, though their existence is at present only hypothetical.

But the paramount means by which the disease is brought to a termination is the production of an antitoxin, the property of which is to act as an antidote neutralizing the toxin secreted by the bacilli, which are meanwhile destroyed by phagocytosis, or gradually succumb to the bactericidal power of the serum. The protoplasm of an animal that has gone through a natural attack of a disease contains such antitoxin, but in quantities too small for practical purposes, for which such a high degree of immunity as can be obtained only by long-continued artificial immunization is necessary. The horse, though not insusceptible to the poison of diphtheria, possesses the power of producing the antitoxin in so extraordinary

a degree that it is almost impossible to induce the fully developed disease in him, except by using enormous quantities of the toxin. The procedure originated by Behring consists in the injection of a certain quantity of a highly virulent culture of the diphtheria bacillus that has been carried on for a month at the temperature of the blood. This gives rise to a febrile disturbance of short duration, and so soon as it has subsided the injection is repeated, with little, if any, visible result. Gradually increasing doses are injected at short intervals till, at the end of three months, doses several hundred times as great as those first used can be injected with absolutely no effect on the health or well-being of the animal, whose blood is then so charged with antitoxin that very small quantities of its serum are required to confer immunity on or to arrest the progress of the disease in any other animal susceptible to it. Henceforth occasional injections suffice to maintain the condition of the horse's blood, and a litre or more may be drawn off every week. The serum, separated by the coagulation of the fibrin and red blood-corpuscles, carefully filtered and bottled with antiseptic precautions, constitutes the antitoxin so called, or, more correctly, is a solution of the antitoxin, the isolation of which in the dried state has not yet been very successful. The "antitoxin" is standardized by determining the quantity capable of exactly neutralizing the minimum lethal dose of toxin required by a guinea-pig of average size.

If administered in *sufficient quantity* to a patient within the first twenty-four hours from the commencement of the illness, the mortality may be reduced to one per cent, and if within three days to five per cent. At later stages its effect becomes less and less marked; indeed, after the seventh day it has little influence, for though it may avert further destruction of the nerve substance and the fibres of the cardiac muscles, it is obvious that it cannot undo the degenerative processes that have already taken place.

It may also be used for prophylaxis, one good injection rendering the individual insusceptible of infection for a period of, but not exceeding, one month. This use of antitoxin has not been taken advantage of as extensively as it should be. On the appearance of a case of diphtheria in a family or school it should be employed not only on the actual patient in whom the disease may perhaps have already proceeded too far for much effect, but on every other child in the establishment and adults in attendance on the patient. They

will thus be protected for a period long enough to cover the whole course of the original case, and the disinfection of the room and all possible vehicles of contagion.

Much has been written of late about antistreptococcal serums, but their efficacy is far from proven, and there is no satisfactory evidence that they are in any way comparable, the virus of septicemia, etc., belonging to the class of septic rather than of toxic substances.

It is generally held that the antitoxins are secreted by the protoplasm of the cells, and not by the bacteria; but since it is not easy to believe that these cells have the power of producing a separate antitoxin for every possible toxin, it seems a more reasonable hypothesis to ascribe to them the property of acting on the toxin itself in such a manner as to obtain from it or to convert it into an antitoxin; and experiments *in vitro* on certain toxins appear to give support to this view of the mutual relations of the cells, the toxins and the antitoxins.—*The Therapist*.

DID MAN ONCE POSSESS A THIRD EYE?—Deep researches as to the structure of the human body have recently furnished some startling facts regarding changes which man is at present undergoing physically.

It is believed that man was formerly endowed with more teeth than he possesses now. Abundant evidence exists that, ages and ages ago, human teeth were used as weapons of defense. Unintentionally, traces of such use are often revealed by a sneer. The teeth are sometimes bared, doglike, ready, as it were, for action.

The practice of eating our food cooked and the disuse of teeth as weapons are said to be responsible for the degeneration that is going on. The wisdom teeth, in fact, are disappearing. Human jaws, found in reputed Palæolithic deposits, have wisdom teeth with crowns as large as, if not larger than, the remaining molars.

In ancient times a short-sighted soldier or hunter was almost an impossibility; to-day a whole nation is afflicted with defective vision. It is almost certain that man once possessed a third eye, by means of which he was enabled to see above his head. The human eyes formerly regarded the world from the two sides of the head. They are even now gradually shifting to a more forward position.

In the dim past the ear flap was of great service in ascertaining the direction of sounds, and operated largely in the play of the features. But the muscles of the ear have fallen into disuse, for the fear of surprise by enemies no longer exists.

Again, our sense of smell is markedly inferior to that of savages. That it is still decreasing is evidenced by observations of the olfactory organs. But the nose still indicates a tendency to become more prominent.—*Evening Telegram*.

## Letters.

### NEW YEAR'S REFLECTIONS.

#### *To the Dental Digest:*

It was the eve of 1900. The busy dentist sat conning the stack of bills his assistant had made out to send as New Year's greetings to his faithful patients. One by one he picked them up and allowed his memory to go back to the happy hours he had whiled away at the side of the iron chair, giving with what skill he might the equivalent for "the amount due to date." Many of these bills he had sent before at 2 cents per.

Here is a small account of \$8.50 for work done last spring—would it go until the robins nest again? Yes, until the 20th century. Still, he may at least hope. Here is one that recalls the happy hour when he bought the gold for the crowns, with the sure feeling that the fee of seventy-five simoleons would be his when the cement was dry. Alas, six months have set their tarnish on these crowns and—well, here is a happy one. The landlord had called that day and told how bad his books looked. The busy dentist had informed him of the big job under way for the wife of a brewer for which the check would be surely sent on the first of the month; but after the work was started said wife of the brewer took a quick start for Europe, leaving this small bill until her return.

So through the list the pleasant memories came with each. The snow was falling, and as the b. d. took the big bunch of snow white envelopes and dropped them into the red box on the corner, he fancied the joy they would cause as they dropped into the hearts of his appreciative patients like snowflakes on a bronze statue, and in solemn earnest undertone he prayed they might not melt like snowflakes in those warm hearts, but endure like the beautiful pebbles in the gizzard of a turkey gobler. Selah. LESWIK.

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### BUFFALO LETTER.

#### *Dear Digest:*

BUFFALO, Jan. 22, 1900.

In our October letter we spoke of the nervous shuffle of feet in Western New York caused by the revival of the International Tooth Crown Co. patents. A few days since the local dentists were called

upon by a very slick young man, who in soothing tones inquired, "Do you wish to make settlement now with the company for infringement upon its patents?" It is no longer a case of nervousness, but a positive stampede, and it resulted in a mass meeting on Jan. 16, called by the unprotected, hoping thereby to discover means of running under cover. The Protective Association published its ultimatum in the *Digest* of October, wherein it was clearly stated that all in prior to Dec. 1, 1899, would receive the Association's protection. All others must make their own defense, should action be brought against them by the Crown Company. In the same issue Pa Nam mused thus: "We wonder what proportion will pinch the price of protection," etc. It would not be an undeserved lesson, one taught in the severest of schools, Experience, for the Association to decline the 13th hour flood, money and all, and let them enjoy the fruits of their own conceit.

The genial Dr. R. Kessel, after an eight months' visit with his parents in Berlin, where every one shouts "Hoch der Kaiser" (which means to — with him), has resumed practice in this city.

On Saturday evening the staid old District Society, under the safe pilotage of its popular business committee, blew itself for a social dinner at the Genesee Hotel. The charge to each was one-fifty (and cheap at that). The speeches—not one prepared—(except with about fourteen yards of typewritten matter) were limited to five minutes. However, it was an enjoyable occasion, and the custom should be enduring, for only through these social round-ups can that cohesive *esprit du corps* be fostered which is so valuable to all professions.

These pesky State Regents, with all their demanded "counts" before admitting the zealous aspirant into the sacred channel leading up to dental lore, are a nuisance—so say the aspirants. That is, so say those who did not "hold onto the rope" or who saw no rope to hold on to; but never mind, boys, you are all sure of getting the coveted vellum, provided you do square honest work during college days. With your sheepskin in your inside pocket, just settle in Buffalo and you are immune so far as the state's demands for formality go. To convince you that this is a fact, just take time to observe how busy our local censor keeps himself. Log-rolling takes time. Deacon's meetings take time (where there is no specified limit to speeches). Studied and laborious newspaper interviews,



pregnant with advice to the government at Washington as to the care of the teeth in both army and navy, take time.

Should the foregoing not quiet your disturbed nerves, do this and then peace will be your bed-fellow—take a complete list of the men practicing dentistry in this city, deduct all those in legal practice, and then take your chance among the great majority. You are sure to win.

Yours truly,

PA NAM.

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## BRITISH DENTAL SOCIETIES AND JOURNALS.

PHILADELPHIA, Jan. 3, 1900.

*To the Editor of the Dental Digest,*

DEAR DOCTOR: Permit me to correct an error in the second paragraph of the New York Letter, page 905, December 1899, DIGEST. The society spoken of is the British Dental Association, the national association of Great Britain; not the Odontological Society, which is a local organization of London. The journal of the British Dental Association referred to is published by the Association as its official organ, and has now reached its twentieth year. While it is largely taken up with business matters connected with the Association and its numerous branches, the publication of which is its main purpose, it has not neglected the practical needs of its many subscribers in furnishing monthly such information as one expects to find in a dental journal well edited and thoroughly up to date. For a number of years the journal was published at a loss, but since 1895 it has been more than self-sustaining and is now an increasing source of revenue to the Association. With the January, 1899, number it put on a new dress, and was enlarged and improved in every way, so that judged by any standard it has a well merited place in the front rank of dental journals.

The British Dental Association, with its more than a thousand members, its numerous branches scattered throughout the land, all well organized and closely in touch with the central body, its well invested fund available for advancing professional interests, and its benevolent fund which is separate and apart from this, and which now amounts to over \$5,000 safely invested and yearly increasing, notwithstanding a long list of dependents, all this is an inspiration to our cousins across the sea which we in this favored land know not of. In England there is no necessity for a dental practitioner

incapaciated for work, or a dentist's widow or children, to appeal to the public for aid—professional brotherhood means more than mere words in that little isle. The reports of those in charge of this benevolent fund are very pleasant reading. The dental profession in Great Britain is thoroughly organized and its members are loyal. We have proofs of that in the facts that one in five of those eligible are members of the national association, in the large attendance at its annual gatherings, the success of its journal, and the keen interest taken in its benevolent fund and charity work.

English dentists believe, and live up to the belief, in a long pull, a strong pull, and a pull altogether. In America we waste our strength in tugs of war.

Yours fraternally, WM. H. TRUEMAN.

### NEW YORK LETTER.

NEW YORK, Jan. 22, 1900.

*To the Editor of The Digest,*

MR. EDITOR:—A feeling of chagrin has gone over this part of the country because of the action of a few New Jersey dentists in settling with the Crown Co. The prominence to which these men had aspired makes their action all the more humiliating. We mentioned in one of our recent letters that there was a rumor to the effect that some dentists had become stockholders in the Crown Co. We do not like such a record in the beginning of a new century, but we fully believe that the moral tone of the people is on a decline in all directions, so we must expect a contribution from dentists.

As chlorid of zinc is now recommended for mummification of pulps, it may be of interest to the younger portion of our calling to know a bit of the history of the original filling that was chemically what is known as oxychlorid of zinc. However, it was first put on the market under the name of "Os Artificial," and came much into use in the early '50s. Dentists soon discovered that its durability was not of long duration. It had, however, the quality of decidedly hardening the dentin in softer teeth, and we have so filled many teeth to better advantage than if gold or amalgam were used. This practice under good judgment is still advisable. In some cases of nearness of approach to the pulp pain was caused, and this indicated almost without exception death to the pulp. While many dead pulps have resulted from this practice, there has

been seen in all cases a complete mummification of the tissue, which left the canals odorless and safe from all future trouble. In these cases we found it wise practice to leave the pulp-chamber entirely alone. In our early treatment of the deep pockets caused by Riggs' disease we used full strength of chlorid of zinc, and it was effective but painful. In 1877 we made use of this preparation on teeth with closed pulp-chambers and dead pulps. We first drilled a small opening and then saturated the contents of canal and chamber with the remedy, and the results were gratifying. The late Dr. Garretson emphasized oxychlorid of zinc for hardening dentin.

*The Dentist*, of Dec. 23, has an interesting discussion by Sim-Wallace on the etiology of dental caries. His thought differs widely from that of others, especially concerning the influence of heredity in producing disease. He does not agree with Dr. Black that predisposition plays an important part in caries, and he further emphasizes that the change in character of food-stuffs is an important factor. We are disposed to fall back upon that much-meaning term of Garretson's—"Resistibility," and for the origin of this we must go back to the potentiality of the germ life. That it does differ cannot be disputed, hence the variety of results. While it may be true, as Wallace says, that microscopically the structure may be found correct, yet it can be and is deficient in resistibility to prevent functional disturbances.

The annual gathering of the Odontological Society was a great success, some two hundred dentists from all parts of the country being in attendance. We have never seen men in better spirits. Dr. W. W. Walker was the presiding genius of affairs, he having been elected president of the body, and this assured a lively interest in all proceedings. Dr. Head of Philadelphia was certainly a valuable contributor to the meeting with his clinic and paper on inlays. He has lost head and heart in this work. His clinic was on the cutting edge and corner of a superior central, and the result was greatly admired. Dr. Head placed stress on the need of a cement, such as has not yet been discovered, to clear up some of the difficulties that now exist. It is evident that the work is largely in the experimental stage, but it will no doubt ultimately become very useful. It is of such a character, however, that the masses cannot and will not contribute to its success, and only an artist can produce satisfactory results.

We learn that many dentists are studying French. Some of the Paris garçons will smile when taking orders this summer.

It was advocated by side talk at the recent gathering that June would be a more favorable time for the National Association at Old Point Comfort, but New Yorkers object, as it is the busiest month in the whole year with them. Cordially, NEW YORK.

**TO THREAD A NEEDLE.**—Hold it with the ring and little fingers of the left hand, instead of with the thumb and forefinger, as is the usual way. This method, according to Dr. J. M. Jackson, leaves the thumb and forefinger free to grasp the smallest bit of silk or other suture material as it passes through the eye and pull it to a safe distance on the other side.—*Factotum*.

**VARIATIONS IN WEIGHT.**—The following table by W. W. Wagstaff in *Knowledge* is interesting:

	Average.	lb oz.	lb. oz.
9	A. M.—Before breakfast	155 8 (losing	8 6) during night.
10	A. M.—After “	157 4 (gaining	1 12)
12	noon.—Before lunch	156 6 (losing	0 14)
1	P. M.—After “	157 6 (gaining	1 0)
5	P. M.—Before dinner	156 12 (losing	0 10)
6½	P. M.—After “	158 14 (gaining	2 2)

By these figures it will be seen that an average person weighing 155 pounds loses 3 pounds 6 ounces during the night and that he gains 1 pound 12 ounces by breakfast, and then that he loses about 14 ounces before lunch, that lunch adds an average of 1 pound and then he again loses during the afternoon an average of 10 ounces; an ordinary dinner to healthy persons adds 2 pounds 2 ounces to their weight. Of course excess in eating and drinking will change these figures, but they are interesting as averages.

**NOSE BLEEDING AS AN EARLY SIGN OF SOFTENING OF THE BRAIN.**—Dr. Carl Kompe, in *Fraenkel's Archives*, points out that spontaneous nose-bleed in individuals above forty years of age, which cannot be traced to one of the well recognized local causes, is a suspicious sign of general arterio-sclerosis, and calls for a consideration of all symptoms of sclerosis of the vessels of the brain. If the ophthalmoscope confirms this, a fairly positive diagnosis of sclerosis of the brain vessels may be made; and from it of incipient softening of the brain. The same condition of the vessels of both the parts (the nose and the brain) is likely to exist, since they are branches of the same main artery. Before the first indications of sclerosis of the cerebral vessels appear, sometimes premonitory symptoms are observed, which give warning of the early approach of softening, due to arterio-sclerosis. All the early signs of arterio-sclerosis at the heart and periphery must be considered, as cardiac hypertrophy, aortic changes, tense radial artery, tortuous temporal arteries, etc. Vierordt had good results in these cases with the iodids combined with hygienic treatment.

# The Dental Digest.

PUBLISHED THE TWENTY-EIGHTH DAY OF EVERY MONTH

At 2231 Prairie Avenue, Chicago,

Where All Communications Should be Addressed.

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## Editorial.

### HELP THE ILLINOIS STATE BOARD.

Since our last issue the secretary of the Illinois State Board of Dental Examiners has called upon us personally and stated that during three years' time, for which period he has held his present position, he has been unable to get the state to publish his reports. He further says that said reports are now in the hands of the state printer, and that we may look for them to appear at any time. He offered no refutation of our other charges, but we will let them drop for the present, as the most serious evil is rampant. The fact that the Illinois State Board is not conscientiously prosecuting illegal practitioners of dentistry is a disgrace to the fair name of Illinois.

One honorable member of the board, who has the welfare of that organization and of his state and profession at heart, has enlisted the aid of this journal in the work of prosecution, which he will carry on individually if necessary. He wishes us to ask every dentist in the state of Illinois, if such practitioner has knowledge of the illegal practice of dentistry in this state, to send in the names and evidence to us. If so desired, the sender's name will be kept strictly confidential. We can guarantee to the profession in the state that the offenders will be punished to the full limit of the law. There has been much just criticism of the board, but every man now has a chance to help on with the work.

### THE DENTAL PROTECTIVE ASSOCIATION.

It is now six months since the International Tooth Crown Co. won its case by questionable measures and succeeded in getting a decision in favor of the Low bridge patent. Since that time considerable of importance has transpired. Threatening letters were sent out to the profession in certain parts of the east, but no drastic course was taken until the Crown Co. put receivers into the offices.

of nine Boston dentists who were members of the Protective Association. We promptly took charge of the cases, and not only had the bonds released and the keepers removed from the offices, but it will please the membership to know that the Crown Co. were forced to pay the costs of the proceedings and were themselves put under heavy bonds for damages for illegal action.

Suits have been and are now being brought against members in eastern states, and in a very few cases settlement has been accomplished. So far as we can judge, the Crown Co. have brought such action merely for the purpose of intimidation, hoping thereby to force settlement, first with the members for small sums, and afterward with non-members for as large amounts as possible. Threats have been made in the newspapers for a similar purpose, but we are glad to state that in almost all instances the members have refused to settle and have properly referred the matter to the Protective Association, which organization is taking entire charge of the cases where suit has been brought.

The question as to whether the membership books will be again opened to non-members for defense on the Low bridge patent is under consideration, but regardless of this there is a grave misapprehension about one phase of the matter. There seems to be a widespread belief that the doors of the Association are closed to future applicants for all time. Nothing could be further from our plans. *The doors were closed only for defense against suits on the present bridge patents*, and this action has no bearing on the Association taking in new members and guaranteeing to protect them against the abuse of other illegal patent companies. To show the need of such an organization as the Protective Association, we would cite merely one example. Since the Crown Co. won its suit and again began doing business, a company which claims a patent on attaching clasps to plates, and which ceased operations several years ago rather than fight the Protective Association, has again started up, and its agents are traveling through the middle west collecting royalties. We know that other companies of the same stamp are ready to do business if possible. No body of men needs organizing so much as the dental profession, and surely a better plan than that offered by the Protective Association has never been formulated. Let no one be deceived by the Trust—the non-members are in grave peril at the present time.

## ARMY DENTISTS.

The following is the text of a bill introduced in the House of Representatives by Mr. Otey, Dec. 5, 1899, which was referred to the committee of military affairs and ordered to be printed:

A bill to provide for the appointment of dental surgeons for service in the United States army.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the surgeon-general of the army, with the approval of the secretary of war, be, and he is hereby, authorized to employ and appoint dental surgeons to serve the officers and enlisted men of the regular and volunteer army in the proportion of one dental surgeon to every one thousand of said army. Said dental surgeons shall be employed as contract dental surgeons, under the terms and conditions applicable to army contract surgeons, and shall be graduates of standard medical or dental colleges, trained in the several branches of dentistry, of good moral and professional character, and shall pass a satisfactory professional examination. Provided, That three of the number of dental surgeons to be employed shall be first appointed by the surgeon general, with the approval of the secretary of war, with reference to their fitness for assignment, under the direction of the surgeon-general, to the special service of conducting the examinations and supervising the operations of the others, and for such special service an extra compensation of sixty dollars a month shall be allowed: Provided further, That dental college graduates now employed in the hospital corps, who have been detailed for a period of not less than twelve months to render dental service to the army and who are shown by the reports of their superior officers to have rendered such service satisfactorily, may be appointed contract dental surgeons without examination.*

Many worthy members of our profession who seek to put dentistry in a better light before the eyes of the public, criticise the clause in this bill which provides that the candidates shall be appointed as contract surgeons. There is some justice in this complaint, but it must be remembered that the Hull bill, which was introduced in the last congress and failed of passage, aimed higher, and proposed that dental surgeons should be commissioned officers. The appointment of dentists even on a contract basis will show the value of their services in the army, and if it can be proven that there is a real need the present proposed arrangement will lead to better things and eventually raise the army dentists to the same plane as army surgeons.

There is some opposition by physicians now in the service to the proposed scheme, and the *Brooklyn Eagle* of Jan. 16 reports the opinion of "a prominent army surgeon" who is utterly opposed to

the idea. He thinks that if this bill passes, the government should add tooth-brushes and tooth-powder to the rations. He further says that besides the first cost army dentists would entail on the government there would have to be another outlay for materials. To show how little he knows about the subject, he states that men are not accepted as recruits unless their teeth are sound, and "as they serve but three years their teeth cannot deteriorate very much in that time." This statement is so ridiculous that it does not merit a reply, but we believe all the opposition to the proposed bill can be ascribed to the jealousy of army physicians, and it is a further exemplification of the lack of recognition which the medical profession has always given our own calling. On the other hand, some surgeons who have reviewed the matter from an intelligent and unprejudiced standpoint strongly favor it. Dr. F. C. Stanton of Chicago, surgeon in the Illinois state militia and late acting assistant surgeon in the United States army, expresses his hearty approval of the bill, and has written Mr. Otey, commending his efforts towards its passage. He says: "This is a matter the importance of which has been gravely underestimated up to the present time. As a surgeon in the volunteer service, I am aware of the frequency with which the services of a dental surgeon are required, and I shall be happy to do anything in my power to further the passage of the bill."

The bill was given a hearing on Jan. 16, 1900, and we hope that for the sake of the army recruits and the dental profession this important measure may secure a passage. The war department on January 20 received a report from Gen. Otis which will greatly aid the bill. He says that the year's service in the Philippines has practically ruined the teeth of 50 per cent of the soldiers, and that the teeth of the rest show evidences of decay. He wants dentists sent at once, or the men under him will be unfit for service.

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## THE PROFESSION'S FRIENDS—THE S. S. WHITE CO. AND THE INTERNATIONAL TOOTH CROWN CO.

Our attention has been called to a recent circular sent out by the S. S. White Co. which professes to be an interpretation of the decision in the recent case of the Crown Co. vs. Jas. Orr Kyle, the defendant in the Crown Co.'s last suit. This circular is unfair, tricky and misleading. It is intended to convey the impression that



the dentists stand in no danger of litigation from the International Tooth Crown Co., except upon the Low bridge patent, which expired in March, 1898, and that they are in very little danger from even that patent.

Nothing is further from the truth. The Crown Co. have at least thirty-eight patents, for the most part unexpired, relating to crown and bridge work and other artificial dentures. The settlements that have been made thus far by the Crown Co. with certain members of the Protective Association, and the release and license given, relate to fifteen patents only. This bears out our previous statement and confirms the charge of misrepresentation against the S. S. White Co. in their circular.

From a reading of said circular it would appear that its sole object and intention is to discourage the non-members from uniting with us in the Association, and to intimate to the members that they have been frightened into joining when no danger existed of their being sued.

Every dentist knows that he cannot be held for work infringing on a patent after it has expired. This has been frequently stated by us in public meetings and circulars, and we have also stated the length of time for which the profession are liable, in case the patent should prove valid. It has been impossible for us to make any distinction between dentists who were old in the manufacture of bridge work and the younger men who had used the method but a short time before the patent on it expired. The longer time and more work a dentist did the larger amount the Crown Co. could collect from him, but a man who infringed a patent one day before its expiration could be held for one year's license and royalty.

The S. S. White Co. circular intimates that the whole matter is too trifling for the dentists to take any interest in. We would merely point to the twelve year's litigation which the Protective Association has had with the Crown Co. and with several other patent organizations, and the fact that although this patent has expired for nearly two years the Crown Co. are far more active in the bringing of suits against the dentists for past royalty and license fees than they were before the patent's expiration. No one knows better than the officers of the S. S. White Co. and their attorneys that no more harrassing form of litigation can be put upon the dental profession than the numerous suits which are now being

brought in various states. The pretended fear of the S. S. White Co. that they or some of their patrons would be sued by the Crown Co. because of the manufacture and use of "the Logan and other porcelain crowns, and the gold cap crowns" sold by them, is not only insincere but ridiculous.

The action of the Tooth Crown Co. in attempting to intimidate members, and the course taken by their apparent allies, the S. S. White Co., have been so contemptible and misleading that we feel strongly tempted to open wide the doors and give every dentist in the profession, who has not already done so, a chance to join the Protective Association. The books were closed at the solicitation of the membership, but several prominent members and societies have suggested that to reopen the doors might perhaps after all be the wisest course. Our inclination has always been not to limit protection, but the members objected, and rightly, to paying for the defense of those who contributed nothing.

The action of the S. S. White Co. in this instance is in strict accordance with their past methods. The Trust sees the menace to its interests in having the profession banded together, and while they dare not come out so openly, and through their traveling salesmen misrepresent and belittle the Protective Association as they have done in the past, they adopt a more subtle and contemptible course of warfare against our organization. If the S. S. White Co. think the Protective Association is on the right track, why do they not come out and say so? Or if they really believe the malicious statements which they have circulated about us, why have they not the courage of their convictions to openly denounce this organization?

We shall shortly carry the war into the enemy's camp, and issue a detailed communication, showing in small part the vast sums of money which the S. S. White Dental Mfg. Co. has mulcted from the profession in the shape of royalties upon worthless patents, and furthermore, expose the various subterfuges and legerdemain which that company makes use of to conceal the fact that the money is so taken from the dentists. Unlike our traducers, we have facts upon which to base our accusations and not draw upon imagination.

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**TEACHING OF DENTISTRY IN PUBLIC SCHOOLS.**—There is a movement on foot in Cincinnati to teach pupils something about their teeth, and it is thought that the board of education will act favorably in the matter.

## Notices.

### ARKANSAS DENTAL ASSOCIATION.

This organization elected the following officers at its annual session on Jan. 8, 1900: President, W. H. Marshall; First Vice-President, W. T. Cate; Second Vice-President, C. J. Farrow; Rec. Sec., W. C. Gillespie; Cor. Sec., W. H. Buckley; Treasurer, Dr. Collins.

### INSTITUTE OF DENTAL PEDAGOGICS.

The National School of Dental Technics changed its name as above at the annual meeting held in Philadelphia, Dec. 27-29, 1899. The following officers were elected for the ensuing year: President, H. P. Carlton; Vice-President, G. E. Hunt; Secretary and Treasurer, H. J. Goslee. Member of Board, W. E. Wilmont.

### LATEST DENTAL PATENTS.

- 82,005. Design, fountain cuspidor, Henry E. Weber, Canton, O.
- 638,978. Dental matrix retainer, Charles F. C. Mehlig, New York.
- 639,536. Dental plugger, Charles H. Davis, Worcester, Mass.
- 639,585. Dental filling material, Charles H. Land, Detroit
- 639,595. Cleaning pad for dentist's tools, Josephine A. Mitchell, Lewiston, Me.
- 640,551. Artificial tooth crown, Charles A. Fones, New York.
- 640,980. Attachment for dental dams, Martin O. Nelson, Natick, Mass.
- 641,170. Dental appliance, W. J. Thurmod and E. W. Clark, Macon, Ga.

### TRADE-MARKS.

- 33,895 Teething remedy, Johannes B. de Beer, New York.
- 83,947. Disinfectant, Annie Campbell, Washington, D. C.

Copies of above patents may be obtained for 10 cents each by addressing John A. Saul, Solicitor of Patents, Fendall Bldg., Washington, D. C.

### PROTEST BY AMERICAN DENTAL CLUB OF PARIS.

At a meeting of the club in October, 1899, it was voted that the following protest be sent to leading dental journals of Europe and America for publication. Dr. I. B. Davenport of Paris also made some remarks on the question:

"We, the undersigned, whose names are appended to the affirmation of the success of 'Dentine Plastique du Docteur Klein', have never given consent to the use of our names in that connection." Signed, J. G. Brigiotti, E. A. Bogue, C. C. Daboll, I. B. Davenport, C. V. Du Bouchet, Chas. Hotz, Theodore W. Evans, Henry Didsbury, J. H. Spaulding, John Evans, J. Michaels, A. Huguenschmidt, John Didsbury, L. Saussine, Geo. Roussel, W. S. Davenport.

In the advertising pamphlet to which the above names were appended was a cut of half of a molar tooth, with the following explanation: "Dentine Plastique du Docteur Klein du Buda Pest. Vue de sa transformation dans

*la chambre pulpaire apres trois mois de sejour dans la bouche.*" (View showing its transformation in the pulp-chamber after three years sojourn in the mouth.")

Dr. Davenport said: "This circular seems to have been published all over the world, with our names added against our wish or knowledge, and is helping to sell this stuff, the composition of which we know nothing.

"Now about that piece of tooth sent for us to inspect, and this drawing made from the same, which forms part of the circular to which our names are appended, Mr. Dalton can tell you and has kindly consented to do so. Mr. Dalton is an expert preparer of objects for microscopical study; his work in the form of 'Dalton's Gems' is well known." Mr. Dalton said:

"Gentlemen: Some time ago a friend brought me a section of a tooth, of which a gentleman unknown to me wished a drawing made, showing particularly the appearance of a substance under the filling. This out in the circular mentioned by the essayist is a reproduction of the drawing made by me, excepting that these heavy lines have been made over my drawing, as if marking it off into little squares; in all other particulars it is as I drew it. When I examined the section from which the drawing is made I noticed a familiar substance occupying part of the pulp-chamber and supporting the filling. I scratched out a slight fragment, placed it under the microscope and found it to be as I first supposed, a section of cuttle-fish bone. I am not a dentist, but when my friend came for the drawing I casually remarked—'That must have been a clever idea to place a light support of cuttle-fish bone to build the filling upon.' My friend replied: 'Get out with your cuttle-fish bone, that is newly formed dentin.' I was greatly surprised, as I supposed he knew its composition. After some difficulty he was convinced, but not until I had shown him under the microscope pieces of this capping side by side with pieces of cuttle-fish."

## News Summary.

THE ACHERS of the farmer yield the dentist an income.

F. DESCHAUER, a dentist of Chicago, died Jan. 4, 1900, of pneumonia.

James Cope, 85 years old, a dentist at Connellsville, Pa., died Jan. 20, 1900.

APPROPRIATE.—A temperance lecturer died recently from *water on the brain*.

W. H. WATERS, a dentist of Burlington, Vt., died Jan. 2, 1900, at the age of 63 years.

W. C. REITH, a dentist of Sacramento, Cal., died Jan. 17, 1900, at the age of 34 years.

WELDON L. SMITH, 34 years of age, a dentist at Friendship, N. Y., died Jan. 19, 1900.

W. W. BRIDGE, 48 years old, a dentist of Providence, R. I., died Jan. 15, 1900.

M. M. MALTBY, a dentist at Northampton, Mass., died Dec. 23, 1899, at the age of 54 years.

TEXAS BOARD ACTIVE.—It cost a dentist in Dallas \$25 to practice dentistry without a license,

C. M. GLASS, a dentist of Corey, Mich., came to Chicago recently and mysteriously disappeared from his hotel.

BENTON MOLONY, a retired dentist of Norristown, Pa., died suddenly Jan. 17, 1900, at the age of 63 years.

W. L. MAUPIN, a dentist of Perry, Okla., was indicted for murder, according to the *Globe-Democrat* of Dec. 22, 1899.

A. J. WATTS, the inventor of Watts' crystal gold, died suddenly at his home in Brooklyn Jan. 22, 1900, aged 78 years.

DIED IN DENTAL CHAIR.—A man died Dec. 26, 1899, in a dentist's chair at Cadillac, Mich., while under the influence of chloroform.

TONSILITIS.—R. Sodium benzoate,  $\text{r } \frac{1}{4}$ ; elix. calisaya, aa  $\frac{3}{4}$  1. M. Sig. Teaspoonful every hour or two.—*Stevens (N. Y.) Polyclinic*.

M. T. GAY, a dentist at Adairville, Ky., shot a business man of that place during a quarrel, and then committed suicide on Jan. 3, 1900.

TRAVELING DENTIST IN TROUBLE.—He tried to practice dentistry in Vermont without a license, and the state board has gotten after him.

NUTRITIOUS.—"Tommy," said teacher, "what is meant by nutritious food?" "Something to eat that ain't got no taste to it," replied Tommy.

NITROUS OXID FATAL—A 12-year old boy died in Waterbury, Conn., recently while under nitrous oxid, given previous to tooth extraction.

W. S. RAWLS, 52 years old, a dentist of Indianapolis, died Jan. 13, 1900, at Las Cruces, N. Mex., where he had gone to seek a cure for consumption.

SOOR STOMACH.—A teaspoonful of glycerin at meal time, in water or coffee or tea, will cure a sour stomach and overcome flatulency.—*N. Y. Lancet*.

MONTANA STATE BOARD'S REPORT.—From the statement issued by that organization it appears that there are at present 108 registered dentists in the state.

HOT-WATER BAG.—Bill Nye likened the "feel" of a hot-water bag to that of a Mexican hairless dog. Any one who has seen these animals will appreciate the comparison.

CLEVELAND DENTAL SOCIETY elected the following officers Jan. 8, 1900: President, J. F. Stephan; Vice-President, W. A. Siddall; Secretary, F. J. Sprague; Treasurer, E. B. Lodge.

A SOFT SNAP.—Physician: Your husband must stop all work, all thought, everything. Dentist's wife: He would never consent to absolute idleness. Physician: Then we must fool him into imagining he is busy. Get him appointed a member of the Illinois State Board of Dental Examiners.—[With apologies to the *New York Weekly*.]

**NOT WHAT HE WANTED.**—Nurse: It's time for your nourishment now.

**Mr. Peppery** (who is convalescent): Hang nourishment! What I want is something to eat.

**G. O. ROGERS**, a dentist at Portland, Ore., died Jan. 2, 1900, at the age of 67 years. He was prominent as a scientist and philanthropist, and was also well known as a writer and lecturer.

**SIGHT WENT WITH TEETH.**—An Italian in Pittsburg is totally blind, and he and his friends think it resulted from having his teeth extracted, as after each operation his sight became weaker.

**HIVES.**—Jagging Jim—"Ello, Slumpy! What's de matter wid yer face and hands? Got de hives?"

Slumpy—"No—got de bees."—*Judge.*

**WARREN CO. (ILL.) DENTAL ASSOCIATION.**—Eight dentists of this county organized the above association on Jan. 4, 1900. Dr. Darricklow of Monmouth is secretary, the only office instituted.

**MUTUAL.**—"Well," said the patient, paying his bill, "I shall now go and eat a square meal for the first time in three days." "Same here," quoth the dentist, thrusting the money deep in his pocket.

**DENTIST IDENTIFIES DEAD BODY.**—A dentist at Missoula, Mont., identified the victim of a murder at Ashland, Wis., by means of some work which the dentist had done in the mouth of the deceased.

**E. W. ANDREWS**, a prominent dentist of Haverhill, Mass., has been missing from his home since Jan. 5. His health was poor for some time, and his relatives attribute his disappearance to mental trouble.

**SAPONACEOUS DENTINE.**—The manufacturer of a tooth powder, which he is advertising to the general public, designates his product as "Saponaceous Dentine." Will some one kindly tell us what he means?

**PLASTER PAPER.**—T. Koller suggests that cigaret paper painted with the following solution be used as a substitute for court plaster: Salicylic acid, 1; gum arabic, 45; water, 55; glycerin, 2-3.—*Pharm Centralh.*

**BYRON S. SABIN**, a New York dealer in dental supplies, died Jan. 12, 1900, at a prize fight in New York City. He had suffered from heart disease for four years, and the excitement of the fight caused his death.

**OSTEOPATHS IN KENTUCKY.**—The courts of that state do not recognize the school of osteopathy at Kirksville, Mo., as a reputable school of medicine and its graduates will therefore not be allowed to practice in Kentucky.

**TEXT BOOK ON ORAL HYGIENE.**—Dr. W. O. Talbot, of Biloxi, Miss., has addressed an open letter to the legislature of that state, in which he urges the necessity of including in public school curriculums a text-book on the above subject.

**SOUTH JERSEY DENTAL SOCIETY** at its annual meeting Jan. 17, 1900, elected the following officers: President, J. E. Duffield; Vice-President, O. E. Beck; Cor. Sec., W. W. Crate; Rec. Sec., A. K. Wood; Treasurer, Mary A. Morrison.

**LYCOMING COUNTY (PA ) DENTAL SOCIETY** held its annual meeting Jan. 15, 1900, and the following officers were elected for the ensuing year: President, F. J. Richards; Vice President, G. W. Klump; Secretary, W. M. Ash; Treasurer, A. B. Robbins.

**RIGHT TO REVOKE LICENSE.**—The Supreme Court of the State of Iowa in a recent decision holds that the state board of medical examiners has the right to revoke the certificate of a physician if it thinks him incompetent to practice.—*Med. Age.*

**PORTLAND STOMATOLOGICAL CLUB** elected the following officers at its January meeting: President, John Welch; Vice-President, Geo. Marshall; Secretary, W. B. Knapp; Treasurer, F. E. Ferris. Member Executive Committee, C. E. Stolte.

**HUNGARIAN PUNISHMENT FOR BIGAMY.**—Bigamists in Hungary are compelled to submit to a queer punishment. The man who has been foolish enough to marry two wives is obliged by law to live with both of them in the same house.—*Med. Record.*

**CENTIGRADE AND FAHRENHEIT.**—Dr. W. J. Swift writes: A simple and easily remembered formula for the conversion of Centigrade degrees into Fahrenheit degrees and *vice versa*, is the following:  $\frac{5}{9} \text{ C. plus } 32 = \text{F}$ ;  $\frac{5}{9} \text{ F. minus } 32 = \text{C.}$ —*Med. Record.*

**DENTIST SUED.**—A girl 14 years old has sued a practitioner in New York City for \$5,000 damages for malpractice. She alleges that a rubber appliance was adjusted in her mouth for regulating purposes, and that it caused her three front teeth to fall out.

**DRAWN TO THE ALTAR.**—A well developed and muscular young dentist in New York City tried to convince the supreme court recently that his wife had intimidated him into marrying her, but the court did not agree with him and dismissed the case.

**ST. LOUIS DENTAL SOCIETY.**—The following officers have been elected for the ensuing year: President, W. E. Laurenz; Vice-President, T. E. Turner; Corresponding Secretary, Wm. Conrad; Recording Secretary, O. H. Marhard; Treasurer, A. J. Prosser.

**EVANS' MUSEUM MAY NOT MATERIALIZE.**—The three interests involved—the heirs, the executors and the city—are unable to come to any satisfactory arrangement regarding the settlement of Dr. Thos. W. Evans' estate, and Philadelphia may lose the bequest.

**ALLEGANY COUNTY (N. Y.) DENTAL ASSOCIATION** met Jan. 11, 1900, and elected the following officers: President, T. F. Warner; Vice-President, P. Greene; Secretary, W. W. Coon; Treasurer, Jas. Wardner. Chairman of Executive Committee, G. Whipple.

**TRI-CITY DENTAL SOCIETY**, composed of dentists of Omaha, South Omaha and Council Bluffs, was organized Jan. 12, 1900. The officers are: President, J. H. Wallace; First Vice-President, B. J. Fisher; Second Vice-President, C. H. Jefferis; Secretary, H. A. Foster; Treasurer, J. C. Deetken. Program Committee, F. W. Slabaugh.

**INDIANA DENTAL BOARD'S WORK.**—At a meeting of this organization on Jan. 10, 1900, a resolution was passed prohibiting dental students from practicing dentistry outside of the colleges. We did not suppose that students ever practiced until they graduated.

**LORAIN COUNTY DENTAL SOCIETY** met at Elyria, O., Jan. 11, 1900, and elected the following officers: President, H. G. Husted; Vice-President, B. E. Saunders; Secretary and Treasurer, C. W. Purcell. Committee, J. B. Webber, E. F. Grose and E. S. Kiplinger.

**OSTEOPATHY UNLAWFUL IN PENNSYLVANIA.**—The *Columbus Medical Journal* is authority for the statement that the medical council of Pennsylvania has decided that the practice of osteopathy within the state is illegal, and that those engaged in it are amenable to the law.

**ETHMOID BONE AND NASAL CATARRH.**—Sumner calls attention to the importance of the inflammatory processes in the ethmoid sinus, and suggests the prevalent catarrhal condition in New England as the cause of the nasal twang of the Yankee voice.—*Jour. of Med. and Sc.*

**OSTEOPATHY IN GEORGIA.**—Both branches of the legislature passed a favorable act, in spite of the most earnest protests from the physicians of the state. The governor, however, promptly vetoed the bill, for which act he deserves the thanks of the community in the state and at large.

**SOAPS CONTAINING ANTISEPTICS** have been found to possess less antiseptic power than the same amount of such substances without the soap. In disinfecting the hands a non-antiseptic soap can first be used and the desired antiseptic afterward applied to greater advantage.—*Med. Record.*

**PECULIAR ACCIDENT.**—While a patient at Austin, Ill., was sitting in the dental chair a pair of forceps just used on a former patient fell from the table onto his left hand, causing a slight abrasion of the skin. Blood poisoning set in some time afterward, and the forceps are held accountable.

**SOUTHERN KANSAS DENTAL ASSOCIATION** adjourned Dec. 27, 1899, after a very profitable meeting. The next session will be held at Wichita. The following officers were elected: President, J. R. Lowe; Vice President, B. L. Sholes; Secretary, U. S. Hougland; Treasurer, L. B. Corn. Member Board of Censors, J. H. Rhodes.

**ADVERTISING DENTIST ARRESTED.**—The proprietor of a dental parlor in New York City was arrested Jan. 12, 1900, on complaint of the agent of the state dental society, for violating the dental law. It is charged, according to the *New York Tribune*, that the defendant is guilty of malpractice and failure to live up to contract.

**HYPNOTISM.**—"Mammy," said pickaninny Jim, "I's gwine to be one er dese hypnotizers."

"Whut's dem?"

"You look somebody in de eye, an' he des nach'ly goes to sleep."

"Well, don't you go was'in' yoh time. Dah's sleepfulness nuff in dis worl' an—," she paused suddenly, and after a moment of thought added: "Jimmy, does you 'magin' you could do dat to a chikin?"



**DENTISTS LIABLE FOR NEGLIGENCE.**—The supreme court of Kansas has upheld a verdict for damages of \$2,000 which was given against a dentist. The plaintiff averred that the instruments used on him were unclean and that blood poisoning resulted. This should be a warning to all practitioners to thoroughly sterilize their instruments.

**ERUPTIONS ON THE FACE DUE TO NASAL PRESSURE.**—It is not infrequently the case that the unsightly eruptions about the alæ of the nose are due to pressure within the nasal cavities produced by a spur, an hypertrophied turbinal, etc. Though they may not be sufficient to obstruct the breathing, they keep up continued irritation.—*Payne, in Pacific Med. Jour.*

**INDIANA LAW CLAIMED TO BE UNCONSTITUTIONAL.**—The Indiana board convicted an unregistered dentist in the police court, and he has appealed to the criminal court. His attorney claims that the state law is unconstitutional, inasmuch as the legislature has the right to say who the members of the state board shall be. The result of the case will be watched with interest.

**FORCED DILATION OF THORAX TO ARREST EPISTAXIS.**—The subject sits erect on a chair, places both arms on his head and breathes quietly and as deeply as possible, with open mouth. The veins of the head and neck are emptied of blood by this procedure and the hemorrhage stops. The *St. Petersburg Med. Woch.* mentions that Fedorowitsch has cured fourteen severe cases by this simple means, all children but one.—*Jour. A. M. A.*

**LARGE LYMPHATIC GLANDS** about the neck in children are frequently due to enlarged tonsils or to the presence of adenoids. The throat must therefore always be carefully examined in these cases, for removal of the tonsils or adenoids will cause the glands to subside. In adults enlarged glands are very suggestive of the presence of malignant trouble, and necessitate careful examination of the whole mouth and throat.—*Int. Jour. of Surg.*

**OREGON STATE BOARD UPHELD.**—This organization recently refused to grant license to a candidate who did not pass a satisfactory examination. When suit was brought the court remarked that he would not trench upon the prerogatives of the dental board, and held that discretion was necessarily lodged in such a board, and the court would not interfere with it; that he could reverse the board's decision only upon clear and positive evidence of abuse of discretion.

IN A BAD WAY.—“Did I understand you to say that Bill Jones was dead?”

“Yes. Died last Thursday.”

“Is that possible?”

“Yes, that's right.”

“So Bill Jones is dead. Well, well.”

“Yes, he's dead.”

“Do you know, I can scarcely believe it, poor chap! Poor Bill, I knew him well. So he's really dead, is he?”

“Well, if he ain't dead, he's in a darned bad predicament. I saw him buried.”—*Cleveland Plain Dealer.*

**FRAUDULENT ADVERTISING.**—The *Berliner Aertze Cor.* relates that a local physician was recently sued for damages by a firm that had sent him bottles of a new "universal remedy," begging him to try it in his practice. No formula was enclosed. He returned it and wrote on a postal, requesting the firm not to send him anything more of the kind as he considered it fraudulent advertising. The lower court sentenced him to pay ten marks damages, but the higher court acquitted him.—*Jour. A. M. A.*

**PHYSICIAN LIABLE.**—A physician who prescribes and sells to his patients whisky, brandy, wine or other alcoholic liquor that is not compounded into a medicine by the admixture of any drug or medical ingredient therewith, is required to pay special tax as a retail liquor-dealer, even though the alcoholic liquor thus furnished be prescribed as a medicine only and so used, according to a recently reported decision of Commissioner Wilson of the U. S. Department of Internal Revenue.—*Jour. A. M. A.*

**BLACK EYE**—There is nothing to compare with the tincture or strong infusion of capsicum annuum mixed with an equal bulk of mucilage or gum arabic and with the addition of a few drops of glycerin. This should be painted all over the bruised surface with a camel's-hair pencil and allowed to dry on, a second or third coating being applied as soon as the first is dry. If done as soon as the injury is inflicted this treatment will invariably prevent blackening of the bruised tissue. The same remedy has no equal in rheumatic sore or stiff neck.—*Ex.*

**RATHER UNJUST.**—I have heard of the cavalry recruit who when thrown from his horse was reported for "dismounting without leave;" but now comes the tale of a cornet-player in the band of a distinguished regiment who once had the misfortune to lose a front tooth. A false one was bought for his use, and during some Christmas festivities he lost the tooth; but even the iron-faced sergeant-major smiled when the man was brought up in the orderly-room charged with "making away with or losing by neglect one false tooth, the property of the band fund."

**SPECIALISM EXTRAORDINARY.**—The *American Med. Compend* for December quotes Dr. Kyle as saying: "We need more general medicine in specialism. There is such a thing as the specialist becoming too special, as is illustrated in the somewhat exaggerated story of the man who consulted the surgeon for the relief of a badly injured thumb. The surgeon looked wisely at the thumb and said: 'My dear sir, that is a badly injured thumb—you must seek Dr. Blank at once.' 'But, said the patient, 'aren't you a surgeon?' 'Oh, yes,' said the doctor, 'but my specialty is the other thumb.'"

**DRUGGISTS AND MEDICAL PRACTICE.**—Justice McLean, in the New York supreme court, has rendered a decision in connection with the dismissal of the complaint in a suit brought by Ferdinand Roth against Arneman & Behrens, druggists, to recover \$10,000 damages for alleged improper treatment of a cut on the thumb. Roth went to the defendant's drug store, where a clerk bandaged the wound and handed the plaintiff a bottle containing carbolic acid, directing him to put a few drops on the bandage. Ac-

cording to Roth, this treatment resulted in inflammation, blood-poisoning, and finally in amputation of the thumb. The defendant set up the plea that druggists were not permitted, under the laws of this state, to practice medicine and surgery, that the plaintiff should, therefore, have gone to a qualified physician and surgeon, and that if any action could be maintained in this case, it could be only against the clerk. The judge coincided in this view, declaring that the complainant sought advice at his own risk.—*Jour. A. M. A.*

**NAUSEA AS A HEMOSTATIC.**—The natural defensive powers of the animal organism are manifold. We all recognize the efficacy of fainting as a check to loss of blood, and it seems that even seasickness is sometimes of service. At a recent meeting of the Paris Society of Biology Dr. Onimus mentioned the case of a young man who was subject to frequent attacks of hæmoptysis which nothing but seasickness would control (*Gazette hebdomadaire de med. et de chirurgie*, Oct. 26, 1899). He is inclined to think the good effects of ipecac in hæmoptysis are due to the nausea induced by it, and he suggests its employment in other forms of hemorrhage.—*N. Y. Med. Jour.*

**DEFEAT THE TRAVELING QUACKS.**—Physicians who deprecate the patronage of faith-cure fakirs and other frauds by their clientele can well emulate the example of Dr. McDougall of Connersville, Ind. He writes an intelligent, reasonable letter to his local county paper showing plainly the fraudulent character of these "magnetic healers" and their ilk, as well as their mercenary methods of "treating" their victims as long as fees are forthcoming, and then sending them back empty-handed to the faithful local physicians for real medical assistance as charity patients. So effectually does the doctor show up these fellows that they actually soon leave town for want of patronage. His articles are signed "Fair Play," so that he is free from the imputation of self advertising.—*Med. Council*. [Dentists in the smaller towns might do well to follow the above example.—*ED DIGEST.*]

**THE MEN WHO DO NOT LIFT.—**

The world is sympathetic. This statement none can doubt;  
When A's in trouble don't we think that B should help him out?  
Of course we haven't time ourselves to care for any one,  
But yet we hope that other folks will see that it is done.  
We want the grief and penury of earth to be relieved,  
We'd have the battles grandly fought, the victories achieved;  
We do not care to take the lead, and stand the brush and brunt,  
At lifting we're a failure, but we're splendid on the grunt.  
And there are others, so we find, as on our way we jog,  
They do a lot of blowing, and they strive to make it known  
That were there no one else to help, they'd lift it all alone.  
If talking were effective, there are scores and scores of men  
Who'd move a mountain off its base and move it back again;  
But as a class, to state it plain, in language true and blunt,  
They're never worth a cent to lift, for all they do is grunt.

—Selected.

**SEVERE HEMORRHAGE FOLLOWING EXTRACTION.**—W. H. Dolamore advocates the passing of sutures from the gum on one side of the tooth socket through that on the opposite side, and tying them together as tightly as possible. The clot is retained, the thread possibly hastening its formation; the stitches are left in for a few days. In cases where there is much laceration of the gum, and the alveolus is broken or removed during the extraction of the tooth, it is possible with the stitches to draw together the edges of the wound and so lessen its size considerably. He recommends the use of a curved needle, which should be rather strong, for the gum is dense, and the needle is apt to strike against the opposite alveolar wall. Horsehair answers well for the sutures; it should be strong and used in long pieces. Two or three stitches suffice, each being passed through the gum on one side, then through that on the other, and separately tied.—*Jour. Brit. D. Assn.*

**HEMOPHILIA.**—Dr. G. W. Wagner (*Physician and Surgeon*) draws the following conclusions: 1 Hemophiliacs make blood rapidly, the cause of which is undetermined. 2 There is a tendency to plethora of the smaller vessels, especially of the capillaries. 3 The deficiency of oxygen in the blood is one of the main reasons for its slow coagulation. 4 The narrow lung space, at least in some cases, is a factor in the deficient oxygenation of the blood and would suggest that in future the capacity of the lung space be carefully noted. 5 Apparently the best remedy to control the hemorrhage is oxygen either by inhalation or contact. It acts in two ways: it causes greater rapidity in the coagulation of the blood, and it also causes the nuclei of the endothelial cells of the capillary wall to swell and so narrow the lumen of the vessel.

**ALCOHOL NARCOSIS.**—Matthaei, *Centralb. f. Chirurgie*. This method of narcosis is based on the similarity of the effects of alcohol, chloroform and ether and the assumption that alcohol is less dangerous than the others, especially for persons accustomed to its use. Matthaei announces that rabbits can be rendered insensible in two or three minutes to needles inserted in the ears, paws or skin by having them inhale the fumes of alcohol heated to 50 or 60 C., supplemented by a mechanically retained rectal injection of two to five grams of spiritus in ten to fifteen of water. He used Kappeler's metal chloroform mask and apparatus, which sends compressed air into the alcohol. The fumes alone do not produce deep enough narcosis, and it persists too long. The supplementary alcohol is far more prompt and energetic in its action, administered *per rectum* than *per os*, which also avoids danger of the subjects acquiring a taste for liquor. The room must be quite warm to prevent condensation of the alcohol on the mask. In all previous attempts at alcohol narcosis unnecessarily enormous doses have been administered. The proportion for the rectal injection is 1.2 to 2 grams of alcohol per kilogram of weight—that is, for an adult weighing 60 kilograms, 72 to 120 grams of alcohol, equal to from 144 to 240 grams 50 per cent cognac or a bottle of wine, but the effective minimum must be sought for individual cases. He begs others to test this method on man, for which he has no opportunity, suggesting that it might first be tried on intoxicated persons requiring an urgent operation.—*Jour. A. M. A.*

**PHENOMENA OF PAIN.**—As a result of some experiments on the phenomena of pain made by Arthur McDonald, of the United States Bureau of Education, by means of a "temple algometer," he finds that in general pain decreases as age increases; the left temple is more sensitive than the right, as is also the left hand over the right. There is an increased obtuseness to pain between the ages of ten and eleven, a decrease from eleven to twelve, an increase from twelve to thirteen; from thirteen to seventeen, while the right temple increases in obtuseness, the left temple increases in acuteness. Girls in the private schools, who have wealthy parents, are much more sensitive to pain than girls in the public schools whose parents are not wealthy and who are accustomed to work. University women are more sensitive to pain than are washerwomen, but less so than business women; there seems to be no necessary relation between intellectual development and pain sensitive-ness, and an obtuseness to it seems to be due more to hardness in early life. To summarize, acute sensitiveness to pain is greatest with girls of the wealthy classes, then with the self-educated women, then with business women, then with university women, and lastly with washerwomen.—*Jour. A. M. A.*

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# The Dental Digest.

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No. 2.

## Original Contributions.

### TO MAKE BACKINGS FIT PORCELAIN FACINGS.

BY WILLIAM H. TRUMAN, D.D.S., PHILADELPHIA.

Permit me to suggest a quicker, easier and better way than that given on page 797 of the November, 1899, DIGEST. The method I now intend to describe, disclaiming originality, however, requires the use of a small-size Parker Shot Swage, a little appliance that will, in the time saved, very soon pay for itself in a laboratory where porcelain facings are used, and will enable a skilled or unskilled workman to do better work. It is best to use for that portion of the backing that goes next the porcelain, soft metal, either soft platinum or a gold alloy that is soft and pliable. After the porcelain facing has been fully fitted, adjust the backing (it may be made quite thin, say No. 28 or 30), letting it extend beyond the tooth as much as is desired, and fit it to the tooth as neatly as may be quickly done with a burnisher. Now anneal, place it on the tooth and secure by riveting, or as I much prefer, by splitting the pins. Wrap it in a piece of thin paper to keep the shot from contact with either porcelain or metal. Pour sufficient shot in the swage to form a bed for the tooth, lay tooth face down upon it, fill up with shot, place the plunger in position and firmly screw it up between the jaws of a strong vice, or drive the plunger down by a few blows of a heavy hammer. It is not necessary to strike heavy blows; a light hammer gives a rebounding blow, a heavy hammer a solid one, and it is a solid blow that is needed. I very much prefer the vice; it gives the pressure that is most effective and mars the swage less. When the swage is opened the shot will be found very compact. A few light taps with a wooden or copper mallet on the outside and bottom of the swage quickly dislodges it, however, and on unwrapping the tooth the backing will be found to fit like a glove, and may be at once invested and soldered. The method Dr. Cooper explains I used many years, but the shot swage has completely supplanted it.

It was with fear and trembling that I first placed in the swage a thin, delicate tooth and subjected it to the strong pressure of the vice jaws, but it came out all right. If the backing is made thin, of soft metal, it does not require much pressure to secure a perfect fit, and in less time than is required to read this description.

In this connection permit me to refer to an article by Dr. H. J. Goslee of Chicago, in which he advocates, in order to make the backings more protective in crown and bridgework, grinding the cutting edge from the back of the tooth at an acute angle to almost a feather edge, letting the backing extend over it, so that the backing takes all the pressure; it forms really the cutting edge of the tooth. Skillfully done, and "backed off," the metal scarcely shows. Since reading that article I have adopted this suggestion; usually laying along the upper edge of the backing a thick piece of metal when soldering the backing, to make up for the substance removed from the tooth and to give to it a solid edge. I not infrequently make the backing of thin platinum, and flow over this while on the tooth pure or coin gold in sufficient amount to give strength and contour.

I have made, as an adjunct to the swage, a tin tray about six inches square and one and a half deep, one corner arranged so as to form a funnel. The shot I keep in a glass bottle. I fill and empty the swage over the tray. This I have found a convenience, keeping the shot from the work-bench. Do not oil the shot, as it is not at all necessary. The shot swage is a useful appliance for many purposes in a dental laboratory. The Berry Dental Mfg. Co. advise the use of cornmeal, or any of the recently introduced prepared breakfast oatmeals, etc., for swaging purposes in place of shot, sand, etc. I have tried cornmeal in the small shot swage and find it to work perfectly, better and easier than shot. For swaging crowns it is far superior to any of the many suggestions I have tried.

### ORAL PROPHYLAXIS.

BY G. V. I. BROWN, D.D.S., MILWAUKEE. READ BEFORE THE WISCONSIN STATE DENTAL SOCIETY, AT MADISON, JULY 18-20, 1899.

"Prophylaxis" means the prevention of disease, and it is one of those subjects of which too much cannot be said. My purpose is not to go over the ground so thoroughly beaten, by calling attention to the fact that many pathological local conditions, concerning

essentially the mouth, teeth, jaws, mucous membrane and associated nervous, vascular and glandular parts, all intimately related as they are; or affections of more general nature, including diseases of the stomach, intestines, general nervous affections, anemia, pyemia, septicemia, etc., may be caused by neglect of the oral cavity, because all present are thoroughly familiar with those matters. There are, however, some phases of the subject that do seem to need consideration, because their importance is commonly overlooked, and because there is a wide chasm between laboratory results and the actual practical conditions to be overcome in dealing directly with the secretions and surfaces in the mouth. If, as has been stated, the term prophylaxis signifies prevention of disease, then in order that disease may be prevented it is first necessary that one should know how to recognize it, so diagnostic symptoms become a necessary part of the introduction of this discussion.

Certainly no part offers greater opportunity for the disclosure of both general and local pathologic conditions than the mouth, and it is my wish to emphasize the value of cultivating a habit of close observation of the little things that are Nature's signals of distress, which she flies always. The general contour and appearance of the face and eyes, the habitual action of certain muscles that give expression of health and happiness, or pain and trouble, of freedom from care or effect of some wasting disease or mental disturbance, perhaps the twitching of some little muscle may reveal some serious brain lesion. The color of the lips and general character of the mucous surfaces will indicate anemia or its reverse condition, or point to the likelihood of some of the several abnormal conditions of the blood and mark, particularly in the young, disturbances of the digestive tract, specific disease, hereditary taint or scrofulous tendencies.

The form and surface of the tongue has from time immemorial been the sheet-anchor of the general practitioner; the coating of its papillary surface was in good old days considered a sure sign of diseases that are much less readily decided upon to-day without the aid of the microscope. Hare, in a recent work on physical diagnosis, makes the following statement: "The appearance of the surface of the tongue varies greatly even in health, according to the condition of its mucous membrane and the epithelium covering it. The most common attractions in its appearance are due to mere



superficial coatings or fur, which consist of epithelial cells, micro-organisms of many kinds and abnormally-shaped living epithelium. There are, however, very few conditions of the coating of the tongue which are pathognomonic of any one disease, since the coating is produced by local conditions of the mouth rather than by disease itself." Yet notwithstanding the difference between this modern view and the older writers, the same work contains illustrations of so-called typhoid tongue, bilious tongue, tongue of chronic gastric catarrh with anemia, and descriptions of appearance of tongue associated with a very large number and variety of diseases.

The jaws and teeth can tell us at once the social standing, the early training, the habits of life of a patient, or can indicate in individuals the habit of mouth-breathing, catarrh, vegetations in the naso-pharynx, as well as general bodily condition.

We are all accustomed to the habitually open mouth, high contracted vault, saddle-shaped arch, and various irregularities of the teeth commonly associated with mouth-breathing, nasal catarrh and enlarged tonsils. Their significance is generally understood, but we do not urge as we should the early widening of the arch, and often neglect this opportunity to give space until the crowding of the parts in the course of development has helped to cause deviations of the nasal septum and narrowing of the air passages through the nose, which have produced a condition favorable to the formation of spurs, enlargements of the turbinated bones and hypertrophic changes in the naso-mucous membrane. Then, too, by failing to call attention to the necessity for correction of such abnormalities as lie within our own domain, and recommending such cases to a competent specialist upon nose and throat diseases, we have helped deprive the growing child of the fullest possible development and perhaps lessened the natural power of resistance of the healthful body to infectious and other diseases.

A study of the occlusal surfaces of the teeth is something far beyond us at this time. Bonwill, Angle, Walker and others have helped to open the way for great possibilities, and the time is undoubtedly at hand when the whole scheme of present methods of operation will be vastly improved with regard to care of occlusal surfaces; but we can note to advantage the abraded surfaces of teeth, we can study the manner of bringing into approximation the worn crowns of teeth that exactly fit the surfaces each have ground

upon the other. It is possible to study elongations of particular teeth, or tipping in the arch caused by early loss of some tooth through extraction, and follow out the relation of these things to pyorrheal pockets, gingival irritation, neuralgias of the trigeminal, spasmodic affections of the muscles of the face and jaws, and in so doing it will be demonstrated to all that even such small service as the grinding down of one or more teeth may not only check the loosening of such teeth in their sockets, but many times will exert an almost inconceivable influence in cases of chronic pain in the head and face, or even, as exemplified in a recent case in my own practice, of muscular spasm of certain muscles of the lower lip and throat, that without other treatment than correction of the occlusion of certain teeth by grinding entirely disappeared.

In regard to the various forms of stomatitis, syphilis, malignant growths, or the discharging fistulæ from diseased teeth and carious or necrotic condition, their treatment should be taken as a matter of course. In this connection, however, care should be taken of jagged edges of teeth or roots that might tend to produce chronic irritation of the mucous membrane, or growths which might at some future time take on the form of malignancy.

The experiments of Dr. Williams have thrown much new light on the etiology of dental caries, and his statements with regard to the efficacy of fillings are not quite in line with former opinions of enthusiasts, but the lesson they teach is essentially one that bids us supplement our work by every prophylactic measure. It is a notable fact that many fillings, whether of gold, amalgam, cement, gutta-percha or other material, will sometimes fail most ignominiously to preserve tooth structure for any considerable length of time; whereas on the other hand, fillings put in under very disadvantageous circumstances, with less care, skill and perfection, frequently last on almost indefinitely, remaining intact through years and years, even under most adverse conditions. Now the lesson from this is not that one should recommend carelessness or imperfection in dental operations or should fail to observe those principles conducive to success, but it means that beyond our efforts there is something which renders certain teeth for the time being immune against ravages of those particular forms of bacteria which are most destructive to them, and against certain conditions which are favorable for the growth and destructive influence of such bacteria.

Good results have been obtained with many of the vast number of germicidal agents that are commonly recommended and used; yet there are countless cases where, in spite of every care and the most active application of even the most powerful drugs, suppuration will continue, liquifaction of tissue will go on, and all the destructive conditions of chronic inflammatory processes progress unabated. This is also true in general disease. This question of immunity is too broad and too vaguely understood to consider with benefit at this time, but the active and vital, always prophylactic remedy, cleanliness, can ever be discussed with benefit. Cleanliness is the essential thing in oral prophylaxis, but its accomplishment is not such a simple matter as ordinarily considered. Based upon a series of experiments testing the efficacy as a mouth-wash of hydrogen dioxid (Oakland,) as compared with a 5 per cent solution of carbolic acid and a 1:2000 solution of bichlorid of mercury, I have to offer the following conclusions: Carbolic acid and bichlorid solutions held in the mouth come into contact with only those germs that are superficially located, and destroy them. When a superficial scraping from the mucous membrane is then taken and planted no growth results. When a deeper scraping is taken a growth is easily attained, therefore sterilization is incomplete. When hydrogen dioxid is used it oxidizes the organic deposits about the teeth, loosens up the secretions about the gums, and sets free germs that were at first inaccessible to the action of carbolic acid and bichlorid solutions. If after the germs have been thus set free carbolic acid or bichlorid solutions, or further quantities of hydrogen dioxid be used, the most desirable state of asepsis is obtained.

It is one thing to destroy bacteria by direct contact in the laboratory, and another to attack them upon their native heath, protected by fortifications of mucous secretions, waste products and animal fats, in a country filled with hills and valleys of mucous glands and folds of membrane, hence the unreliability of reports published as to comparative tests of drugs. With more or less variation in strength or rapidity of action any of the germicides commonly recommended will destroy germs when in direct contact, but without some agent to prepare the way by removing the protecting coating, or some force to carry the remedy on into the secluded places, they are absolutely unreliable in the mouth. The essential thing in the treatment of suppurating wounds, or to prevent the formation of

pus, is to make the surrounding conditions unfavorable. There must be a culture media of some kind, and when this is removed it is necessary only to keep it so, and your microorganisms will disappear.

Certainly clinical results prove that  $H_2 O_2$  is all-sufficient for every purpose, even in the gravest cases. I recently removed five large sequestræ of bone through an extremely small opening in the palate, in order that speech might not be interfered with by loss of the soft tissues. This of course made cleansing and disinfection doubtful, but although the cause was syphilis, the result has been complete and radical cure of the local manifestation. In empyema of the maxillary sinus, removal of sections of the jawbone, pyorrhea pockets, cleft palate operations, and in a large variety of oral operations,  $H_2 O_2$  unaided has proven itself quite sufficient to bring about speedy and good results.

To sum up, it might be stated that by precept, by example, by lectures by dentists in our schools and other places of instruction to the young, the importance of cleanliness and care of the mouth and teeth should be impressed upon the public everywhere, and they should be acquainted with the diseases that might result from neglect of necessary prophylactic precautions. Also the use of a properly shaped tooth-brush, floss silk, dentifrice and a good mouth-wash should all be recommended.

Discussion. *Dr. G. C. Marlow*, Bloomington. Extraction of even one tooth may bring about serious results. A gentleman had all of his teeth extracted, as he supposed, but some time after he felt something in the neighborhood of the lower cuspid. His dentist decided there was a tooth there, and when extracted it was found to be a third molar. The patient, knowing the location of a "wisdom tooth," was very anxious to find out how this one happened to be in such location, and the dentist explained that "it was hunting for something to lean against." This is a great tendency of all teeth, and if we extract one we take away the support of the remainder in the jaw and they immediately look for something to lean against. When a tooth is extracted the one above, in trying to find something to antagonize with, drops down so that we have a stretched condition of the nerve and perhaps severe neuralgia.

*Dr. J. N. Crouse*. Every practitioner must have observed the difference in different mouths. There may be a dozen children un-

der six years of age without a sound tooth, and the next child examined will have no sign of caries, the mucous membrane and teeth being in perfect condition. Apparently one child is as healthy as the next, but in reality he is not. We find the same condition in adult life. I have had patients leave a competitor because his fillings gave way; and probably came to me just about when they were immune from decay, so I received all the credit; or vice versa—some one else secured my patients in the same way. The most important question to-day is, "What brings about this change in the individual which causes intermittent decay of the teeth?"

### STATE BOARDS AND COLLEGE FACULTIES.

BY C. A. KITCHEN, D.D.S., ROCKFORD, ILL. READ BEFORE THE WISCONSIN STATE DENTAL SOCIETY, AT MADISON, JULY 18-20, 1899.

In the establishment of great enterprises there are to be found always men of brains, energy, foresight and unselfish devotion, who seem endowed by nature for such special work. The profession of dentistry is no exception to the rule, for in its earliest history in this country we can point with pride to men who recognized the important place it was destined to fill, and in their wisdom set on foot movements looking to the future success and usefulness of a calling which at the time received but little attention from the people. If at the present day the masses are slow to appreciate true merit, what must have been the condition existing in those early days?

Notwithstanding all efforts made to change existing conditions—to overcome the obstacles standing in the way of progress, the rush of unprincipled and incompetent men into the ranks of the profession alarmed the better class of practitioners and they tried in various ways to stem the tide and correct the evil—by insisting upon longer terms of apprenticeship and increasing the prices for office tuition. Thus even before the days of dental colleges, attempts were made to place restrictions upon students, with the hope of raising the standard of requisite professional attainments. As an example, Dr. Parmley, one of the best operators of his time, gave notice that his terms for teaching the art were to be as follows: For preparing a student to practice in London, \$1,000; for any other city in Great Britain or America, \$700; while for foreign practice in general, \$500; and best of all, he required that applicants must be gentlemen of *liberal education*.

A desire to improve the opportunities of those seeking dental education led Harris, Hayden and others to establish the old Baltimore College of Dental Surgery, and to organize the first board of dental faculties in the world. What an epoch in the history of dentistry. The successful launching of that great enterprise stimulated and encouraged those same men to advance the interests of other undertakings; we find them foremost in introducing dental journalism and equally active in the formation of the first dental societies. These efforts were worthy the hearty support of all who were interested in obtaining dental knowledge, but we have good reason to know that a large number were not ready to accept and to make use of the favorable advantages afforded. The college was not patronized, the journals not eagerly subscribed for, and the dental societies not largely attended.

No one who reads the history of those times will accuse those Fathers of Dentistry of selfish motives. They labored "without fee or hope of reward," except that priceless compensation—the consolation which comes to all who honestly and faithfully perform a recognized duty. We owe them our lasting gratitude for their persistent efforts in striving to elevate the standard of scientific dentistry and insisting so strenuously that dentists must be *educated men*.

While the preparation of young men was in the hands of practitioners like Parmley students were turned out who were well qualified for their duties and were an honor to their worthy preceptors; but there was a vastly greater number, utterly incompetent as teachers, who accepted applicants for short terms, requiring of them no mental or moral attainments, and as there were no legal restraints upon this method, as may be supposed empiricism increased at a rapid rate.

All efforts to remedy the pernicious custom in vogue met with strong resistance, and a war was then and there inaugurated against charlatans which has waged since that time.

*Dental Legislation.* When dental legislation was first proposed that larger portion of those who were classed as incompetent arrayed themselves in vigorous opposition and stubbornly resisted every attempt to regulate dental practice by legal enactments.

"No rogue e'er felt the halter draw  
With good opinion of the law."

Curiously enough, Alabama, almost the poorest state in skilled

dentists at the time, was the first to pass a dental law. By this act an examining board composed of physicians was appointed. (Whether there was one on the board who could tell a sixth-year from a temporary molar is not stated.) However, they were considered competent to pass upon the qualifications of dentists. Dr. Harris said more than fifty years ago, in referring to the Alabama law: "Much may be done even in this way, but the true remedy lies in the general union of educated dentists in a central association, aided and sustained by state societies. Such, acting with as much power from the state laws as surgeons and physicians have, will be able to make the profession honorable, respectable and useful."

Later New York was enabled to secure dental legislation, though differing from that of Alabama. The state was divided into districts, each having a dental society. They aimed to so classify practitioners that the public might be the better able to designate the men worthy of confidence and patronage; hence those who were pronounced worthy of the honor of preferment were granted a degree, M.D.S.—master of dental surgery. This degree was honored and protected by the new law, and those who assumed it or made illegal use of it were severely punished.

Ohio in the year 1868 enacted a dental law that embodied almost completely the principles of recent legislation in the various states. This law vested in the state dental society power to issue certificates to those who were found qualified but did not hold diplomas, while all who had been in continuous practice for five years were considered to have complied with the law.

From the time the state laws became effective dental colleges increased in numbers and their students rapidly multiplied. The long-looked-for opportunity was at hand when colleges and their faculties were masters of the whole field of dental instruction, with power to choose matriculates who were endowed with the mental and moral attributes that would insure improved conditions, increase the influence of educators, and secure the respect and support of all who desired and demanded progress in dentistry.

Now I ask, Have the college faculties made proper use of the power given them? Have they fulfilled our hopes and expectations? Have they guarded the entrance-gates honestly and faithfully since they were stationed as sentinels at the outposts? Have they always insisted upon thorough preliminary examinations to satisfy

themselves that applicants for admission were young men of *integrity* and possessed of sufficient knowledge to meet all the requirements? If they have, how do they account to the profession and the public for those unworthy young men who have *somehow* passed the preliminary examinations, glided through the whole course of dental pupilage, received their diplomas, and are after all found to be deficient in both mental and moral attributes, who usually degenerate into advertising quacks and are a disgrace to the college that too readily granted them favors? We all know many such cases.

I believe that practitioners in general are ready and willing to extend the hand of fellowship and offer fraternal greetings to the young men locating among them who have been thoroughly fitted for the places they expect to fill, and who have a proper estimate of the importance and dignity of their positions; but on the other hand, we can but feel disgust and resentment when the young graduate who has somehow passed into and through a dental college of repute proceeds at once to open up "dental parlors," and to make use of all the well-known devices of charlatans to secure patronage.

The interests of the colleges, of their graduates and of the people are closely interwoven. College faculties know their duty towards their students, and if they always insisted upon a rigid examination there would be nothing to criticise or complain of. If they omit this they stultify themselves, wrong the profession and the public, and injure the prospects of the young men with whom they are too lenient. Afterward there should be a very small number of students who are able to deceive their instructors and secure diplomas from a reputable college by fraud.

Some of you will well remember the strenuous efforts put forth to secure the passage of state dental laws, and you will recall the surprises in store when opposition confronted us from unexpected sources, and the utter indifference of our legislative bodies when we tried to show them the great need of protection for the people.

The next step was to induce prominent and capable dentists to accept positions as examiners on the state boards, and in some cases we found great difficulty in bringing a governor to see any merit in our best selections. Those who were finally appointed to carry out the provisions of the law were in many cases not graduates of dental colleges, but were friendly to the college faculties and seemed anx-



ious to carry out their wishes and to indorse and uphold them in their labors and at the same time to look after the interests of the people by examining carefully all applicants who presented themselves for license to practice.

At the last annual session of the National Association of Dental Examiners, Oct. 14, 1898, a rule was adopted that has caused controversy, and which might with propriety be considered in this paper. The board saw the need of a settlement of the question which has been in dispute for several years, as to the qualifications of young men offering themselves as matriculates in the dental colleges. Let us quote the rule:

#### RULE VIII.

Section 1. Colleges desiring recommendation to the state boards by the National Association of Dental Examiners shall make application for such recommendation through the Committee on Colleges, on blanks provided for that purpose.

Section 2. Colleges, to be recommended by this Association, shall require of students applying to them for matriculation, a written entrance examination in the following studies:

English	{ Grammar.	{ Spelling	
	{ Composition.	{ Punctuation.	
		{ Grammatical Construction.	
	Geography	{ Descriptive.	History { United States.
		{ Physical.	{ General.
	Latin	{ Rules of Grammar, Declensions, Con-	
		{ jugations, Construction.	
		{ Translation of Easy Prose.	
Mathematics	{ Advanced Arithmetic.		
	{ Algebra—through Quadratics.		
	{ Plane Geometry.	Elementary Physics.	

The candidate to make a general average of at least 75 per cent. In lieu of this examination, a certificate of graduation from a high school, college, or university, or an entrance certificate to the freshman class of the academic department of a college or university, may be accepted. The institutions, however, granting these certificates to be accredited as standard by the communities within which they are located. This rule to become operative at the beginning of the session of 1899-1900. In admitting students, who have taken a partial course in other colleges, to advanced standing—junior or senior classes—colleges to be recommended shall require evidence from such students that their first matriculation was in accordance with the requirements under this rule governing the entrance examination.

Section 3. The statements set forth in the application of any college for recommendation shall be verified after investigation by the Board of Dental Examiners of the State in which the college is located, or by other persons, designated by The National Association of Dental Examiners, in case no such State Board exists; and the commendation of such Board shall be essential to such action.

Section 4. The State Boards in connection with this Association are hereby required to become informed of the character of the dental colleges located in their respective States, as to their equipment, facilities, and methods of teaching, and shall report annually to this Association wherein they fail to comply with these requirements.

Section 5. Attendance of students upon three full courses of not less than six months duration each, in separate college years, shall be required before final examination for graduation.

Section 6. Each dental college desiring recommendation must have a teaching faculty composed of at least six individuals and teaching the following branches: Operative Dentistry, Dental Pathology, Dental Prosthetics, Oral Surgery, Anatomy, Physiology, General Pathology (fundamentals), Materia Medica and Therapeutics, and General Surgery. Their students must also be taught the subjects of Chemistry and Bacteriology in laboratories adapted to the purpose, and under suitable instructors. That such college must possess in addition, suitable lecture-rooms, a well appointed dental infirmary, and a general prosthetic laboratory, and must furnish in them systematic instruction to its students.

Section 7. All recommended colleges must maintain these rules and conditions and any violation of them will cancel recommendation.

Note A. We consider it inadvisable for a member of an examining board to be connected with a dental college in any capacity whatever.

Note B. We suggest that each college conforming to these rules shall specifically so state, and publish in its annual announcement the actual preliminary requirements contained in section 2.

No doubt that rule was adopted after much deliberation and a thorough canvass of the conditions existing throughout the country. It covers the ground completely, and I can see no reason why it should receive so much opposition. Is there present a graduate of any college who does not know from cases that have come under his own observation, and from other evidence, that there has been laxity on the part of college faculties in the preliminary examinations?

The Wisconsin State Board on the strength of the rule just read has refused to grant a license to an applicant who holds a diploma from a well known college which does not accept the requirements made upon it, and the courts are appealed to for redress by the applicant for license. The board is perfectly consistent in its course, as it is bound to carry out the instructions of the National Association, of which it is a component part. Can any court decide this controversy to the satisfaction of the parties interested? No; it must be settled by the judgment and good sense of the dental profession at large. I believe it is competent to settle all questions

vital to its interests. If the rule adopted by the Examiners meets its approval and is considered to be a reform measure, then the college faculties must meet the requirements and proceed to carry out the instructions, because "reforms never move backward."

The time has come when all applicants for licenses to practice, even those holding diplomas, should be required to give satisfactory evidence of their actual qualifications. State boards should be armed with this power to examine. Every graduate who successfully passes the ordeal will reflect credit upon his college and prove that most of the college faculties are doing honest, faithful work, while it would uncover the crookedness of those that were not, and bogus colleges would soon cease to exist.

The following clipping will show that the Illinois State Board of Health is prompt to carry out the provisions of the new medical law:

Important steps toward preserving the high standing of the medical profession of Illinois were taken by the state board of health in its meeting held yesterday at the Great Northern Hotel. The spirit of the medical practice act passed by the last legislature and in force July 1 will be carried out, and an examination will be required of every physician desiring to practice in Illinois, regardless of the fact that the letter of the law gives the board the right to license graduates of medical colleges of the state in good standing without first examining them.

Whether the Illinois State Board of Health would avail itself of the discretionary powers conferred upon it by a law originally intended to elevate the standard of the medical profession in the state was a question which attracted the attention of the medical fraternity at large. Had the board of health decided to admit the graduates of any institution to practice in the state without examination by the board in violation of the spirit of the law, which requires that every practicing physician must have a certificate from the state board, the medical profession of Illinois would have suffered largely in the estimation of the profession at large.

"Doctors all over the United States have been watching to see what action the state board of health would take," said Dr. J. A. Egan, secretary of the board, yesterday. "If we had decided to admit the graduates of any institution to practice without examination by the board a Chinese wall would have gone up around Illinois so far as the medical profession is concerned, and the doctors and the medical colleges of the state would be the sufferers. The board, however, will maintain the standard contemplated by the law, and in order to put ourselves on record we passed the following resolution waiving our power to give certificates without examination:

"Resolved, That the Illinois State Board of Health will not consider in good standing for the purpose of granting certificates without examination any medical colleges in Illinois, and that all applicants for a state certificate to practice medicine and surgery in the state of Illinois who are graduates

from medical colleges in good standing, as may be determined by this board, shall, before receiving a certificate, be obliged to pass an examination such as contemplated in section 2 of "An act to regulate the practice of medicine in the state of Illinois," in force July 1, 1899."

A recent dental magazine article entitled "The Diploma Traffic," quotes its authority for the statement that there are as follows: At Kansas City, one; at Jacksonville, one; at Philadelphia, one; at Boston, one; at Milwaukee, three; and at Chicago, eight institutions that furnish diplomas for cash and no questions asked. Between three and four hundred of these worthless diplomas have been scattered in Europe; more than one hundred in Germany alone. "Our home market does not patronize the special American industry, owing to restrictive legislation and the invidious distinction set up by examining boards." "Wisconsin and Illinois are the two states in the Union where the diploma traffic is wide open, and where the law practically allows degrees of all kinds to be sold regardless of the qualifications of their recipients." If these charges are true, and no doubt they are, these two states should be among the first to begin a war of extermination upon bogus colleges and their traffic.

Some of you may object to granting so much power to examining boards, whose membership may be composed of purchasable men, and you may contend that so long as political influence secures those positions for designing men we should have no guarantee of good results; but I believe that if *we* as members of our profession do our whole duty, and if dental societies awake to their interests and properly appreciate their power and influence, there could be created such a strong public sentiment that no governor would think of disregarding our wishes.

College faculties and examining boards now have their duties and responsibilities which cannot be transferred or assigned. They hold in their hands power to make or mar our profession's reputation, but we, members of the dental profession, are the still greater power behind their throne, to direct and assist them in every laudable effort to uphold professional integrity and to carry forward the work committed to their care. Let them not ignore our wishes.

Discussion. *Dr. B. G. Maercklein*, Milwaukee: Who will examine the state boards and ascertain whether or not they are qualified to act as examiners of these students. Most of the men assem-

bled here are graduates of a two years' course. Some have attended only one course, and perhaps many have not attended any. Yet we expect the state boards to examine men who have received superior advantages. Pressure should be brought upon the colleges for better and more perfect instruction, but I do not think the state boards are the ones to dictate.

*Dr. G. V. I. Brown, Milwaukee:* Dr. Maercklein was on the board for many years, and I would ask if the same conditions prevailed during his term of office. I believe our state board is undoubtedly trying to do as nearly as possible what they think is right. It seems to me the difference between the rules of the Faculties' and Examiners' Associations is very small.

*Dr. B. G. Maercklein:* The board was no better when I was on it than it is now, and I do not believe a majority of the members could have passed the examinations if you had changed the papers.

*Dr. T. W. Brophy, Chicago:* Dr. Kitchen stated the Faculties' Association provided that applicants for admission to the colleges must have a certificate from the superintendent of public instruction. This is correct but incomplete. The minimum requirements of the Faculties' Association are that the student must have been admitted into the second year's course of a high school, or produce certificate from the superintendent of public instruction to the effect that the student's education is equivalent to that standard.

Another gentleman has said there is only a slight difference between that standard and the one established by the Examiners. Probably eighty per cent at least of the students who apply for admission to the dental colleges have advantages which would more than meet the Examiners' standard, so far as the high school question is concerned; but according to the Examiners' rulings, it will be impossible at the opening of this fall's session for any man to be admitted to college unless he can read and translate Latin, and possesses a knowledge of higher mathematics, including engineering and the higher grades of geometry and trigonometry. About a dozen schools have agreed to this, but do you think they can live up to the agreement?

*Dr. G. V. I. Brown:* Most high schools require that at the end of the first year the student must have had some training in Latin, and most students have had higher mathematics by the end of the same period, so I repeat that the two standards are very similar.

*Dr. C. C. Chittenden*, Madison: From my own personal knowledge, based on facts, about seventy per cent of the dental colleges of the United States have accepted rule 8, and have agreed in black and white to stand by its requirements. There is a small number of colleges, perhaps a dozen, who have refused to pay any attention to the Examiners' rulings, their plea being that it is impossible to enforce any such rule. If they can enforce the requirements of an examination covering a one year's course in a high school, they can enforce two years as well. The Examiners made that rule last fall simply because it was necessary to do something. Previous to that we had no assurance as to what sort of examinations were given students for matriculation in the different colleges. In some of the announcements it was stated that "A satisfactory examination" or "A good English education" or something of the kind would be required. The matter was left entirely in the hands of the faculties, and I think there is no question in the mind of anyone present but that many of the colleges have grossly abused it. The Examiners have always hoped that there might be some standard established by the colleges, but as nothing satisfactory was accomplished we made a careful move in the matter with the best intentions in the world. Dr. Brophy tells us that his college could comply with this rule if it chose and only fifteen per cent of the students this year would be affected, yet the Chicago college is fighting against accepting such standard. If the reputable schools would back us up in this matter, as they should, there would be no difficulty about enforcing the rule.

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**FORMALDEHYD DISINFECTION.**—Formaldehyd disinfection is carried out in an extremely simple manner in Chicago. The room to be disinfected is sealed and prepared as usual for sulphur disinfection. All its surfaces are exposed as much as possible, cupboard doors opened, clothing hung on lines, mattresses set on end, etc. For every 1,000 cubic feet of space an ordinary cotton bedsheet (2 by 2½ yards) is suspended by one edge from a line stretched across the middle of the room—as many sheets as necessary being used and hung at equal distances. Properly sprinkled, each sheet will carry without dripping 5 ounces of formalin—the 40 per cent solution of formaldehyd. The operator, with a damp cloth tied over his mouth and nose, then rapidly sprinkles each sheet with this amount of formalin by means of a special spray-producer. Commencing at the sheet furthest from the exit, the spraying has to be done expeditiously, as the air becomes irrespirable in about three minutes. The room is closed and left so for not less than five hours.

## **Digests.**

**TUBERCULOSIS OF THE UPPER JAW IN LITTLE CHILDREN SIMULATING EMPYEMA OF THE ANTRUM.** A. Avellis (*Munch. Med. Woch.*, 1898) describes the typical empyema as a purulent affection of the lining membrane of the antrum. An empyema of the antrum is hardly possible in an infant on account of its development, which is only  $\frac{1}{2}$  mm. deep in the fourth month of life. The author considers that the cases published by Power, Moure and Griedenberg were nothing less than a tuberculosis of the marrow tissue in the nasal and palatal process of the upper jaw—in fact, caries. He observed a case himself which had been diagnosed as empyema. An abscess developed below the left eyelid in a six-weeks old boy. This pointed, and small pieces of bone were expelled through the copiously-discharging fistula, while the cheek began to swell. At the same time a purulent and fetid discharge issued from the left nostril. In a hospital to which the patient was admitted granulations, pieces of bone and one carious tooth were removed. The wound healed by first intention, but the nose continued to discharge pus. The author saw him when he was one year and a quarter old. The anterior wall or upper jaw was only slightly swollen; the hard palate, however, markedly bulged into the mouth on the left side. Palpation did not reveal a soft spot. A sound passed into the nose revealed very rough, sharp and denuded portions of bone. A microscopical examination which was held later revealed a few, but distinct tubercle bacilli in the discharge. Avellis states that acute osteomyelitis of the jaw is also frequently mistaken for an empyema of the antrum.

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**TO PREVENT SHRINKAGE AFTER EXTRACTION.** By S. J. Hayman, L.D.S. Eng. Extraction of a tooth leaves a wound to heal, with loss of structure. Healing must take place; can we prevent the shrinking? In using this method a very little care will dispense with the necessity of a temporary plate or alteration of the permanent one, when the gums have healed. If treated in the manner now suggested the gum will not shrink, but will form beautiful festoons round the facings, and a close fit between gums and facings is certain. We require a perfect model of the surface to be fitted by

the denture, which shall include models of the sockets of the extracted teeth, and then an appliance which shall keep the sockets open at convenience, hours, days or weeks if need be, while the denture is being made.

First an impression is taken in plaster; then the teeth are extracted, the roots filed smooth and a little wax smeared over them so that they may deliver easily, they are put into the impression, which is then poured, and when the cast is obtained the natural teeth are extracted from it, and an accurate copy of the mouth results. A plate is made in vulcanite (about three hours is time enough) which carries points filling the sockets. The patient wears this to keep the sockets open; it does not irritate or hurt. The points may be shortened and made slightly smaller so as to give no pressure. Keeping the sockets open with cotton is very painful; vulcanite is much the better.

For the permanent denture facings having long necks should be fitted as high as possible up the sockets, say  $\frac{3}{8}$  of an inch; if only  $\frac{1}{8}$  of an inch is embedded the gum will shrink. The finished denture should be worn night and day at first; the gum will settle round the facings. Dentures made in this way do not cause tenderness in wearing; the facings simply hang in the sockets. Of course dentures are often made before the extractions are done, the plaster teeth on the model being cut off and sockets bored, but the plan proposed is more accurate and clean; next day there is no bleeding.

Take two impressions of mouth, one for immediate use with vulcanite, the other for denture. Pour separately, as the natural teeth are required in each.—*Jour. Brit. Dent. Assn., Jan. 1900.*

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**PAINS FROM MALOCCLUSION.** By John S. Engs, D.D.S., Oakland, Cal. In the fall of 1897 Mr. F., aged forty years, visited me for treatment. Among other things I filled a distal cavity in the right superior second molar with amalgam. Three months later he returned complaining of slight pain in that tooth. As the cavity had been quite deep I suspected pulpitis and made an application to the gum over the tooth, using tincture of iodine, tincture of aconite, and chloroform P. E. The patient was seen the next day and said all was well.

Six weeks later he called again, with recurrence of the trouble. The same treatment was repeated, but the next day the pain re-



turned. I repeatedly touched the gums for several days, but the relief from pain was only temporary. The patient suffered more than before, especially while chewing food and when any pressure was brought to bear on this tooth. With the exception of decided evidence of vitality in the pulp, I had every reason to think it a pronounced case of pericementitis threatening an abscess. I was not quite satisfied with the diagnosis, and suspecting trouble from the position of the tooth, took impressions of both jaws that I might look closer into the articulation.

I then discovered that the superior second molar had been thrown so far forward from its normal position that it almost touched the second bicuspid (both the superior and inferior first molars had long since been extracted). Every closure of the lower jaw brought the coronal surface of the inferior third molar to bear distally upon the upper second molars, causing a severe lateral strain. I ground away the corono-distal surface of the upper second molar, and then forced a wedge of wood between it and the second bicuspid. The patient could then chew without any discomfort. It was evident that the trouble was due to malocclusion.

It seemed proper that the upper second molar should be moved back as nearly as possible to its normal position. This was effected with the aid of cottonwood wedges inserted between it and the second bicuspid. The process was begun May 2 and completed June 8, 1898. A gold band with a nugget of gold soldered to it, large enough to fill the space between the two teeth, was cemented to the molar. More than a year has elapsed since then, and there has been no recurrence of the trouble.—*International, Dec. 1899.*

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**REPAIRING RUBBER PLATES.** By Rufus G. Beale, D.D.S., Philadelphia. To render the repairing of a rubber plate satisfactory it is necessary to previously prepare a guide. To do this cement the old teeth to the plate, and if the plate be fractured unite with rosin and wax cement the broken sections. Pour plaster into the plate to make a cast; then cover the lingual surface of the plate and cutting and grinding surfaces of the teeth with plaster, thus making a plaster bite or articulator.

If a single tooth placed between natural ones becomes broken, or if the broken portion of the plate is missing, it is usually necessary to take an impression of the space and the adjoining teeth, or an

impression of the missing portion of the plate, which impression should be taken with the plate in the mouth.

When a plain tooth or a sectional block is broken, and the rubber back of the pins is moderately thick, heat the tooth or block and carefully remove it from the plate. Then enlarge and undercut the pin holes with an engine bur. Scrape the portion of the plate immediately beneath the teeth to make the new rubber adhere. In placing the new plain tooth or the sectional block it may at times be necessary to unite the pin holes, and groove the undercut to accommodate the pins after the grinding and fitting.

The holes or grooves in the plate should be slightly more than filled with rubber, previously softened, and a thin layer pressed over the old rubber immediately beneath the porcelain teeth. Then heat the teeth and force into position, holding them firmly until the rubber is cool. The excess of rubber should be trimmed off with a warm spatula. Invest the case in the flask and vulcanize. This will make a strong and invisible repair.

In case the rubber forming the portion of the plate back of the porcelain teeth is thin, it should be removed and so filed as to make a dovetail space. Holes should be drilled at this point to retain the teeth, and filled up with soft rubber, a thin layer of which should also be placed over the old rubber beneath the porcelain teeth, as before described. Then heat the teeth and press firmly into place.

After this pack around the pins with soft rubber, using enough to fill the space a little more than full. Trim away the surplus and smooth the surface with a hot spatula. Flask the case and vulcanize. In flasking place the sections of the flask together and fill with plaster mixed to a thin consistence. Place plaster on the inner portion of the plate, as though making a cast, then imbed the plate with the soft plaster upon it in the filled sections of the flask. Jolt the flask to exclude the air, and allow the plaster to come in contact with every portion of the plate.

Where a plate is broken into two pieces, after making the guide, remove the teeth from each side of the break, or if necessary from over the break. The broken edges of the plate should be filed, so that the new rubber between will be a little more than one-eighth of an inch in width. About a quarter of an inch from their new edges make with a sharp chisel a clean cut about a line in depth, running parallel with the edges and extending the length of the

fracture. Then bevel this space from the chisel line, terminating in a knife edge at the filed portion of plate. A number of holes should be drilled through the beveled portion of the plate, which holes should be countersunk on both sides.

The object of making a clean cut, a line in depth parallel with the filed edges, and cutting in and rounding off the rubber at the plate line, is to allow the new rubber to end in a thick and relatively well-defined edge, and restore the posterior portion of the plate in one thickness of rubber; thus preventing curling up of the rubber in polishing, which is certain to occur when the new rubber overlaps the old.

When these details have been completed, place the sections of the plate on the cast, and hold in position by the aid of the thumb and finger, while packing the rubber on the labial or buccal surface of the plate, after which the sections should be made fast to the cast by retaining them with rosin and wax cement at the circumference of the plate. Pack the rubber by filling up the holes on the palatal portion of the plate with small particles of softened rubber, and fasten in place with a warm spatula; after which cut a piece of rubber large enough to fill in the open space between the plate edges and press well into place, being sure to have a sufficient quantity to trim up well in the polishing process. Then seal the edges of the new rubber with a warm spatula, and thoroughly cover the entire palatal portion of the plate and the cutting and grinding surfaces of the teeth with freshly mixed plaster, which should be allowed to harden to guard against any possible displacement of the sections while flasking. Flask the case as before described, on the cast, but with the plaster support. Do not open until after the vulcanization of the rubber.

A large amount of wax and rosin cement should not be used at the circumference of the plate to retain the sections; all should be removed previous to flasking, excepting that which is absolutely necessary for holding plate to cast. A thin line of cement at this part of plate will not affect the fit of denture in any way after the vulcanizing process.

In the method above described the rubber can, with care, be worked with a warm spatula almost as easily as wax, and the plan does away with packing the case in the flask after the usual manner, and the attendant possibility of working an excess of rubber

under the palatal portion of the plate when closing the flask, thus impairing the fit of the plate. This method of preparing the plate and packing the rubber also embraces cases of repairs of lower plates.

When the rubber cannot be placed in position with the teeth, it is necessary after the dovetails and holes have been made to prepare the case in wax. Invest in the lower section of the flask, pack, vulcanize and finish after the usual manner.

The above described method of repairing rubber work will be found time-saving and will insure a nonporous result. My object in describing it is not so much to call attention to the packing of the rubber, as to the mode of preparing the plate for repairing; it is a method which after finishing, produces well-defined lines and makes an extremely strong and neat repair. It has been used by me for more than twelve years with entire satisfaction.—*Brief, Dec. 1899.*

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**NEURALGIA FROM TOOTH IMPACTION.** By George E. Johnson, D.D.S., Fort Wayne, Ind. Read before Northern Indiana Dental Association, Aug. 31, 1899. The patient was Dr. J. E. Waugh of Angola. The doctor had suffered from neuralgia for a period of twelve years at irregular intervals, and especially when undergoing attacks of coryza. March 21, 1899, he was seized with an attack. It had every appearance of coryza or rhinitis, which developed into severe pains through the left side of the face, and meatus auditorius externus, membranes of pharynx. Swallowing caused pain and a crackling noise, caused by compression and release of the tube. The left nostril was much swollen with pus, covering membrane between the middle and inferior turbinated crest. Inferior turbinate not much affected. Middle turbinate "water-logged" and chemotic, showing venous circulation engorged. At the margin of left zygoma pain very severe upon pressure.

March 26, 1899, I trephined the right superior tuberosity and explored for the missing tooth. Upon penetrating the tuberosity my instrument dropped into a space surrounding the crown of tooth, and my first impression was that I had penetrated the antrum, and it seemed to confirm my diagnosis of mucous engorgement, as the mucus oozed out all around the trephine; but further exploration revealed the presence of the tooth crown without any communication with the antrum. Next, with a tubular knife in the engine I made an opening a little larger than the crown and burred away the

process to get free access to tooth. Very little hemorrhage followed, and it was very easily controlled by the use of pyrozone. I inserted a No. 3 elevator or "stump extractor" to a depth of five-eighths of an inch between the second molar and the impacted tooth, using the alveolar process over the distal root as a fulcrum, and giving the elevator a slight forward and upward rotary movement the imbedded tooth was quickly dislodged.

March 30, 1899. Patient much improved in appearance and slept well last night; however, this morning, upon rising, pain began at lower border of zygomatic arch and condyloid process. Copious discharge of mucus from the nose. Membrani tympani is not nearly so much inflamed and not bulged; cracking in the ear not so severe.

April 1, 1899. Slept well and had no pain; partook of full breakfast; then pain began along lower margin of zygomatic arch; local tenderness at two points still well marked, viz., junction zygomatic with the molar process and over root of second left upper molar well back over tuberosity; lumen of left nostril open; chemosis of middle turbinate with free muco-purulent discharge; no swelling of face.

April 2, 1899, 2 p. m. The writer trephined the upper left tuberosity over site of third molar, reaching a depth of three-eighths of an inch before coming in contact with the crown of impacted tooth. I made a free opening and removed the tooth with a pod elevator. Finding one tooth lying transversely, you see they could not be extracted with a forcep. The roots of both teeth were favorable for their removal, and by planting the elevator upon the mesial surface and using for a fulcrum the alveolar process over the distal root of the second molar, and giving the elevator a slight rotary movement upward and forward, the tooth was removed very quickly.

My first diagnosis was that the teeth were either nondeveloped and the trouble was that of mucous engorgement of the antrum of Highmore, or that the roots penetrated the antrum, but upon making a very careful exploration of the sockets I found no opening.

Pressure in the sockets in the region of the posterior dental canals in the tuberosity produced severe pain, proving conclusively that the neuralgia and other concomitant symptoms were produced by pressure of the malposed third molars against the dental nerves at the posterior dental foramina of the tuberosities.

No swelling or soreness followed the operations, and on April 4, 1899, the pain and other symptoms passed away, but the patient

suffered considerable pain throughout the head, showing degeneration and consequent functional disturbance of nerve tissue. The ears felt more clear and less numb and examination showed the membranes to be free of redness. Catheterization of the eustachian tube showed it to be open and free. The nose was free of discharge and the middle and superior turbinates quite pale and only slightly chemotic.

April 27, 1899. No pain in the ear since third day after operation, but left middle turbinate had the appearance of mucous polypus. To-day patient could speak for himself.

There is another sort of impaction of lower third molar, which is of frequent occurrence and not difficult of diagnosis, but is the most difficult operation we are called upon to perform. My practice is to dissect the tissues of the superior constrictor and buccinator from the alveolar process on the lingual surface down nearly to the mylohyoid groove, and then take a sharp fissure bur and cut two grooves through the cortical tissue or casing of the process in line parallel with the direction of the roots and a little larger or broader than the greatest diameter (antero-posterior) that the roots are supposed to occupy. Next with a cone-pointed fissure bur make a groove down through the process close to the cervico-buccal surface, parallel with the buccal surface and toward the apex of the roots, of sufficient depth to insert the No. 3 elevator or "stump extractor," which is to be used as a lever in tipping the tooth towards the pharynx, with the process intact. With a curved bistuary or scalpel any adhering soft tissue can be dissected from the fragment, which can be easily removed with a pair of spicula or lower root forceps. The soft tissue folds into the wound without leaving any evil or undesirable results.—*Indiana Journal*, Dec. 1899.

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SHOULD PULPS GENERALLY BE DEVITALIZED IN CONNECTION WITH CROWN AND BRIDGE WORK? By S. H. Guilford, D.D.S., Philadelphia. At the recent annual convention of the National School of Dental Technics an essayist remarked that he considered it advisable to devitalize the pulp of each tooth that was to be covered by a crown or bridge. Another speaker in discussing the paper said that he made it a rule to devitalize teeth under such conditions. Emboldened by this support the essayist later remarked that he believed it would soon be con-

sidered next to criminal not to devitalize any tooth which was to be covered by a crown. Such bold assertions going unchallenged in a large gathering of college teachers and workers suggested the thought that probably many of them agreed with the views set forth. The question naturally arises: "Are there many practitioners who pursue this heroic practice, and if so, upon what grounds is it based?"

As both speakers quoted were from western states, their views may possibly reflect the common practice in their section, but if it does it certainly does not coincide with eastern custom. Undoubtedly the conclusions of the speakers were based upon their own experiences in practice, but what those experiences were was not stated. A living tooth covered with a well-fitting artificial crown, cemented in place, is supposed to be unusually well protected against both thermal changes and bacterial influences, and such being the case, it is difficult to understand what cause there would be for preliminary pulp devitalization. If pulps were liable to die under crowns, it would certainly seem advisable to devitalize them in advance and by thorough surgical and antiseptic treatment forestall any possible danger of abscess or periosteal trouble; but are they thus liable?

We can conceive of but two conditions under which pulps might die when covered with a metal crown. One is, decay occurring about the cervix through ill-fitting of the crown; and the other, thermal changes transmitted through a body of dentin too slight in extent to protect the enclosed pulp. The latter can occur only in cases where the crown has been too liberally denuded of enamel and dentin. For this there is certainly no necessity. A crown must be reduced in size to receive a properly-made hollow metal crown, and through lack of such necessary reduction, many of the failures and most of the disgraces of crown work occur, but excessive mutilation of the natural crown is hardly less reprehensible, because it not only entails great suffering upon the patient during the operation, but also leaves the pulp inadequately protected.

When a tooth which is to serve as an abutment for a crown is much tipped in position, many practitioners heedlessly cut away the tipping portion, so as to admit of the bridge being placed in position. In so doing much good tooth-structure is sacrificed and the pulp is brought relatively nearer the surface, thus endangering its

vitality through thermal changes. Why not avoid this by correcting the malposition of the tooth as we do in regulating? The tipping tooth may by a suitable application of force be brought into an upright position, and the bridge when inserted will retain it there. In this way all excessive cutting may be avoided and the life of the pulp more certainly assured.

It seems strange that the death of pulps under crowns should be the frequent experience of some practitioners and not of others. The writer cannot recall a single instance of this character in many years' experience in crown and bridge work.

We fear that the value of a living pulp is less appreciated by some than it was in former years. Many writers speak of devitalization as unconcernedly as they would of the placing of a filling or the adjustment of a crown; but who is there that considers a tooth without a pulp equal in durability to one with a pulp? True, after middle life the function of the pulp is less important than in earlier years, but those who wear crowns or bridges are not all old. Fully one-half are young people, to whom the matter of living pulps is of the utmost importance. The writer would not willingly suffer the loss of a pulp for any pecuniary consideration, and feeling thus, he should consider it almost a crime to inflict a similar loss upon any patient. It is well to remember that alveolar abscesses are not found in connection with living teeth, but often are with devitalized ones. Besides, when the time comes for the mortal body to return to the dust, we would prefer to have it go intact rather than have it sent before on the installment plan.—*Stomatologist, Jan. 1900.*

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**NECROSIS IN BONE AND ITS TREATMENT BY THE ORGANIZED BLOOD CLOT.** By C. B. Parker, M.D., Cleveland. Necrosis is not a disease. It is the termination or sequel of disease. In its strict meaning the word is synonymous with gangrene, mortification or sphacelation. By our American and English authors, as well as by common usage, the term necrosis has come to mean death of a visible portion of bone; while to the same condition occurring in the soft parts the terms gangrene, mortification or sphacelation are applied.

Necrosis of bone and gangrene of the soft parts take place in the same manner, and result from the same causes, and there is no reason why they should receive different designations, simply because



they occur in different anatomical structures. But these terms have become so intimately associated in the medical mind with these very anatomical structures, that, for the present at least, there is no hope of any change. In our day death of bone will never be described as gangrene, and moist gangrene will never be described as necrosis. Recent German writers have made a very useful distinction between the terms necrosis and gangrene by which we may retain them both. According to this distinction, the term necrosis is applied to any tissue in which the circulation, nutrition and function have ceased, whether this accident occurs in the osseous or soft tissues. The term gangrene is to be applied when saphrophytic bacteria invade the necrosed tissue and give rise to decomposition. Under this view necrosis occurs everywhere as a physiological process in the death of the individual cells, in the retrograde processes of nutrition.

In normal metabolism the building up equals the tearing down, i. e., regeneration, and in the earlier periods of life, even more. That is, growth. If the number of necrotic cells are greatly increased for any cause, without a corresponding increase of the regenerated cells, we have a numerical atrophy, i. e., a cellular necrosis. Or all the cells in a visible part, be it in osseous or in soft tissues, may die. We then have a total necrosis. Thus, broad as the field included under the subject of necrosis is, it will be my purpose to take up the subject only so far as it occurs in bone, bearing in mind, however, the wider significance given to the term in modern medical parlance.

Bone serves not only as a supporting framework for muscles and organs; it also has important physiological functions. In the red marrow, during extra-uterine life, both red and white blood corpuscles are formed. The red ones, according to Bizozero, being formed from erythroblasts within the blood-vessels of the red marrow, and the colorless ones from lucoblasts, in the extra vascular parts of the red marrow. After copious hemorrhage, when the animal forms a larger number of corpuscles than usual, as if it were striving to make up the deficiency, the number of nucleated red-blood corpuscles in the red-blood-forming marrow is greatly increased, and even parts of what was previously yellow marrow appear somewhat reddish.

In view of these important physiological functions of bone marrow, we need not wonder that the pathological changes in these tissues are likewise important and striking, and furthermore, that

they are identical with those that take place in the soft parts under similar conditions.

Inflammation in the soft parts equals . . . Osteitis in bone.

Organization in the soft parts equals . . . Sclerosis in bone.

Abscess in the soft parts equals. . . . Abscess in bone.

Ulceration in the soft parts equals. . . . Caries in bone.

Gangrene in the soft parts equals. . . . Necrosis in bone.

Mr. Savory of London has pointed out, and Dr. Roswell Park has emphasized, the remarkable resemblance in anatomical structure existing between bone and lung, and the identity in course, accidents and termination of the same disease occurring in them. For example, tuberculosis. Thus it has been shown that cancellous bone much resembles the parenchyma of lung tissue. Both are eminently spongy. The pleura bears much the same anatomical resemblance and physiological relation to the lung that the synovialis does to the bone end; just as pleuritis is set up in phthisis, so is synovitis in tubercular osteitis; just as adhesions tend to form in the pleural cavity, so do they in the synovial cavities also; just as obliteration of internal veins causes prominence of subcutaneous veins about the chest, so are the superficial veins enlarged about a tumor albus; just as a tubercular pleuritis may lead to an empyema, with all its disastrous consequences, so may a tubercular synovitis lead to a pyarthrosis (empyema of the joint), with fungus ulceration and the like. In almost every feature, then, is the variable progress and effect of tubercle in bone and lung alike. Furthermore, as in the larger number of cases the tubercular affection seems to locate by preference in the extremities of the lungs, i. e., the apices, so we find that in bones it is most common in the vicinity of joint ends.

This comparative similarity between two such apparently different tissues as bone and lung serves only to emphasize the identity of pathological processes in osseous and soft structures. It is greatly to be regretted that we have no common nomenclature to indicate these identical processes. The contrasts which seem to exist between these structures under pathological conditions are really differences in symptoms, and are due chiefly to the peculiar structure of bone. Bone contains a large proportion of earthy matter, which is perfectly unyielding, inelastic, and so far as pathological changes originating in it, perfectly inert matter. Pain in all bone affections is more severe than in similar affections of equal era in the soft

parts, and swelling, an ever present sign of inflammation in the soft parts, is often absent in the centrally located bone diseases. These conditions are entirely due to the unyielding character of the earthy matter in bone.

The chief causes of bone necrosis are: First, mechanical, such as trauma and embolus, not containing bacteria; second, chemical produced by such agents as phosphorus and mercury; third, necrosis due to the presence of bacteria. Mechanical causes of bone necrosis include traumatism, especially comminuted fractures and other injuries where the bone is divested of its periosteum over wide areas or its vitality otherwise destroyed. I am rather doubtful if the death of the bone in such cases is really due to being deprived of its periosteum. In simple comminuted fractures, no doubt, many fragments become denuded of their periosteum, but necrosis rarely follows. It is when germs enter and suppuration takes place, as sometimes occurs in compound fractures, that necrosis usually results. Necrosis may also be produced when a vessel supplying a given area of bone becomes closed by an embolus, i. e., anemia necrosis. If this embolus does not contain bacteria, the death of the bone is due entirely to the mechanical obstruction.

*Chemical Necrosis.*—This form occurs in working people exposed to the fumes of phosphorus or mercury in factories. By careful inspection and filling of the cavities of the teeth, by great cleanliness, and the use of amorphous phosphorus, the number of cases have been greatly diminished. The disease is often chronic and has a tendency to destroy the new bone as it forms, and thus the maintenance of the integrity and usefulness of the bone is often difficult.

When for any cause a portion of bone becomes necrosed, a process of separation is at once begun to remove it from the living tissue; softening, liquefaction and absorption of the earthy material. Granulations spring up between the living and the dead bone, the vessels in the granulation tissue absorb quantities of the fluid produced, and as the circulation has been arrested at different points in the different vessels, the granulations will form an irregular line. Delicate finger-like granulations extend into the spaces formed in the process of absorption. As long as any communication exists between the living and the dying fragment, this process of absorption goes on. Thus the sequestrum, as the dead piece is called, when completely separated from the living bone, is far smaller, and

of a different shape oftentimes, from that of the original area involved. The slower this process of separation, the more complete the process of absorption. Owing to the irritation produced while this process is going on, new bone formation is set up by the osteoblastic cells in the periosteum, as well as by the leucocytes which crowd into the area of irritation. This process of new bone formation is often so accurate as to completely envelop the dead fragment, thus serving to restore the integrity of the bone. The discharges find an exit through cloacæ or openings in the new bone formation and break through the periosteum. After burrowing for some distance along the sheaths of neighboring muscles, and always in the direction of gravity, they finally appear upon the surface. The sinus thus formed is lined with a thick wall of granulation and discharges creamy non-irritating pus.

*Diagnosis.*—The presence of a sinus and detection of dead bone is in many cases easy, and conclusive evidence of necrosis. That the dead bone is separate and movable is not always so readily determined. The sequestrum, though entirely separated from the living bone, may be so firmly imbedded in the involucrum that it cannot move when pressed upon by the probe. In any case the length of time the condition has existed must determine this question, and if six or more months have elapsed it is fair to presume that separation has taken place, and a successful attempt to remove the fragments can be made; but it is the earlier stages of inflammation, before the destruction has gone so far as to cause the later death of the bone, that the diagnosis should be made. The cases of acute septic osteoperiostitis and osteomyelitis are not common, and an early diagnosis is not always made. Three such cases have come into my hands recently, but only after some ten or twenty days had elapsed, and the signs of fluctuation were distinct and the damage to the bone had already been done. These cases were in the hands of good general practitioners and were regarded as rheumatism. But rheumatism never involves a single large joint, except gonorrheal rheumatism, and this is really a sepsis and is often symmetrical. The subjects of acute bone inflammation are usually children or young adults, with a history of a recent attack of some zymotic disease. Such a history, with severe symptoms from the onset, should lead the surgeon to suspect the true condition. The localization of the pain in one of the bones of the extremity, and this

pain not yielding to the prompt, active, antiphlogistic treatment of rest, alteratives and cathartics, within two, or at most four days, I believe it is the duty of the surgeon to place the patient under an anesthetic and explore the seat of pain, even to penetrating the bone.

Chemistry seems about to furnish a valuable means of diagnosis in these cases. It is well known that in the conversion of albumen into peptone numerous intermediary products are formed, that is, albumoses. That bacteria, in their life activities, develop similar albumoses, and it is believed that the albumose formed by many varieties of bacteria is peculiar to each, though the chemist has yet found no perfect method of separating and identifying them. Where separation is going on in the body certain peptones have been found in the urine. Their presence is regarded as a sign of suppuration, and the localized pain in the bone would give a sufficient indication for incision.

*Treatment.*—There is no advantage to be expected from internal medication in the treatment of necrosis beyond its tonic effect. We have no means of liquefying the sequestrum by remedies taken internally or applied locally, and the only relief is by surgical means. The treatment of phosphorus necrosis is special and demands separate notice. The extensive manufacture of matches at Akron, O., has given the surgeons of the city unusual opportunities to observe the clinical characters of this disease. Dr. Jacobs has kindly furnished me with an outline of his practice. After using the usual remedies for periostitis without arresting the disease, it is his practice, especially when the disease involves the lower jaw, to remove the carious teeth as early as possible, and cut the alveolar process down to the body of the bone. He then makes a furrow for drainage into the body of the bone over the whole extent of the diseased surface. This gives sufficient drainage to protect the involucrum from the destruction peculiar to this form of necrosis. The parts are to be kept clean by antiseptic washing and dressing. By this method the sequestrum is fairly loosened in time, and may be removed and the confirmation of the jaw maintained. Early operations for the removal of the sequestrum always give greater deformity than those treated as above outlined. Indeed, he says: "I do not look for much deformity in these cases, while after my earlier operations I seldom had any kind of a useful substitute for a jaw." In the upper jaw, where the drainage is

natural, he simply cuts back to the normal bone, clears out the cavity, keeps it dressed as nearly antiseptically as possible, and they recover without much loss of bony tissue.

The usual method of treatment has been to make an incision down to the bone, strip back the periosteum, chisel through the involucrum, expose the sequestrum and remove it. Scrape out the cavity and pack with iodoform gauze, and permit the wound to heal by granulation. The treatment by the organized moist blood clot was first suggested by Schade, the accomplished bone surgeon, now at Halle. By this method the cavity in the bone and all the sinuses leading therefrom are to be rendered completely aseptic, and this space to be filled by a blood clot which, protected by suitable dressing, becomes organized into fibrous and osseous tissue. This method will not succeed in all cases, as in some the sinuses are so numerous and so placed that it will be impossible to render them aseptic. The most favorable cases are those in which the necrosis occurs in the subcutaneous bones, such as the tibia and ulna, where the sinuses are short, and where possibly they may all be included in the line of incision. After removal of sequestrum the most painstaking scraping with Volkman's spoons should be made and the cavity thoroughly cleaned out; next the sinuses, each in turn to be scraped, until the last fragment of lining membrane has been removed. Peroxid of hydrogen full strength should be used until all foaming ceases upon a reapplication, or bichlorid solution 1-1000 or 1-2000 freely flushed over all the surfaces.

The new remedy, formaldehyd or formalin, I have found a most useful antiseptic in 1 per cent solution. In this dilution it is an ideal bactericide, is nonirritating and has no unpleasant odor. Even in one-half of 1 per cent solution it is more effective as a germicide than carbolic 1 to 40. It preserves tissue equal to alcohol, does not rust instruments, and is an excellent solution in which to preserve them during operation. So far as my experience goes with this remedy, I regard it as an ideal antiseptic. In bone diseases it has also one special marked advantage. The vapors arising from its application in a bone cavity are fully as potent in destroying germs as the solution. The advantage is obvious, as the vapors constantly rising have a tendency to destroy any germs remaining or developing later in the field of operation.

Lastly sterilized water to remove previous solutions; the soft parts

brought into apposition and united with silkworm gut sutures. Over the united wound a sterilized strip of Lister protective, sterilized gauze, absorbent cotton, rubber tissue, and an oakum pad, in the order named. It is my custom to immobilize the part, applying either a splint or some immovable dressing, such as starch, glass or plaster, and where practicable include the joint on either side of the affected part. This dressing is to remain in place two or three weeks, unless a rise of temperature and constitutional disturbance indicates that the case is not progressing favorably, when the dressings must be removed and the cause sought for, and removed if possible.

My first case was one of necrosis of the ulna in a woman. The operation was performed in the manner described, and a very delicate sequestrum,  $3\frac{3}{4}$  inches in length, removed; the wound dressed in the manner outlined. There was no rise of temperature or other disturbance, and in three weeks, when the dressings were removed, the wound was found solidly healed. By the open method the final result would have been equally as good, but after a much longer time and with more suffering. This method is especially to be recommended in the case of children. The fear and the pain of repeated dressings is obviated, and much actual suffering, as well as mental anguish, saved to the patient.

In closing, I would suggest that this method may be of still wider application, especially in operations for tuberculosis of bone. We know that true suppuration does not readily occur in the caseous masses of bone tuberculosis. We are all familiar with the contents of cold abscess; that this fluid is the result of a tubercular disease in the bone, and that it remains for months and even years within the body without becoming infected with the germs of true suppuration. The same is true of many tubercular foci found in bone; though they contain tubercle bacilli in abundance, the bacteria of suppuration are rarely found. In view of these facts, may we not expect good results in such cases from this method of healing by the organized blood clot?—*Cleveland Medical Gazette.*

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ORTHOFORM AND NIRVANIN. By William Rotenberger, Munich. For about a year orthoform has been used successfully in the entire range of medical science, and I was induced to try it. The brilliant results which I achieved with the orthoform induces me

to group the cases in which the orthoform has become during my experiments entirely indispensable.

*First.* In cases of violent pains coming from an inflamed pulp lying free the effect is instantaneous, the pain being at once relieved. It is not necessary to apply carbolic acid, as the orthoform itself has a strongly antiseptic effect, according to the investigation of Mosse; and according to Fink, it is best antiseptic in powder form. Orthoform is absolutely without smell or taste, in the application of which no precaution of any kind need be observed, as it has no effect upon intact mucous membrane, unlike carbolic acid.

*Second.* In pains after the extraction of teeth and roots, cases where chloroform, opium, camphor, tincture of aconite, cocain, etc., had no effect. I therefore apply orthoform after every extraction, and completely fill the wounds with the pain-allaying antiseptic, even when through the extraction of the entire set of teeth numerous wounds are present. This can be done without fear, as the orthoform is entirely non-poisonous. According to the reports of Neumayer, Hecker, Klaussner and others, patients have been given 10 grams or more at one time of the orthoform *per os* and 5-6 krg. has been applied externally upon the surface and its use continued for several months.

*Third.* In the treatment of buccal ulcers, burns, injuries of the gums and teeth, orthoform need only be used in order to at once stop the pain.

*Fourth.* For the filling of root-channels, where I apply orthoform and asbestos. But my experiences in this direction are too limited to enable me to submit now a definite opinion concerning this method. Up to the present time iodoform (a substance in which, as is generally known, bacteria develop quickly) has been used for the same purpose. This substance is offensive on account of its taste and smell. Orthoform suppresses the growth of the bacteria entirely and is inodorous.

*Fifth.* When the excavating causes great pain I dry the cavities well, lay in orthoform and close with wax. After one or two days the cavity may be prepared painlessly, or at least with very much lessened sensibility.

Of late the inventors of orthoform, Prof. Einhorn and Dr. Heinz, have been successful in finding a soluble orthoform, which is brought to our notice under the name of "nirvanin." It fills all the re-



quirements of a local anesthetic. Nirvanin has the same anesthetic effect as cocain, and is to be applied similarly, but it also possesses great advantages over cocain, and all such remedies used by the dentist. It is absolutely harmless, causes no condition of excitement, respiratory or heart complications. The patient can arise at once after the extraction. Anxiety, dizziness, vomiting, fainting spells, which occur so often when cocain is applied, are almost entirely absent.

For about three months I have made trials with nirvanin in solutions of one, two and five per cent. My observations have brought me to the temporary conclusion that a solution of five per cent is the most certain in its effects for our purpose. Out of 164 extractions 155 were painless. The nine cases in which nirvanin has been used in which it failed may have been the result of unfavorable circumstances. An operation of this kind may be a failure, as it is extremely difficult to inject a sufficient quantity, especially about the lower molars.

I slowly prick into the gingiva, and exercising a uniform pressure upon the piston of the syringe, go forward to the periosteum and empty one-half of the syringe; the other half I inject on the inner side of the gum adjacent to the tooth. After having waited three to five minutes I extract the tooth painlessly. One injection is usually sufficient to make anesthetic several neighboring teeth, and I have been able to extract twenty-two teeth at one sitting with one injection, without any unpleasant aftereffects. I have used nirvanin with best results also with children without any bad effect.

The five per cent nirvanin solution may be sterilized by heat without becoming decomposed in the least. The solutions of nirvanin can therefore be kept for weeks without decomposing. The sterilizing of a five per cent solution is not absolutely necessary, as nirvanin itself has germicidal effects, and a one per cent solution prevents growths of bacteria, decay and fermentation. Nirvanin causes no edema, or at least seldom.—*German Dental Weekly, No. 36.*

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**QUALITATIVE FACTOR IN THE PRELIMINARY DENTAL EDUCATIONAL REQUIREMENT.** By Edward C. Kirk, D.D.S., Philadelphia. Read before Central Dental Association of Northern New Jersey, November, 1899. It may be safely asserted that no one thing so surely indicates the rate of advancement in

dentistry as the demand of its votaries for higher standards of educational qualification. In all directions the thought finds emphatic expression that in order to fill out to its full dimensions the popular ideal, the dental practitioner must hereafter possess an educational equipment far in advance of that heretofore considered sufficient. Originating within the professional ranks, the cry for higher standards has awakened a sympathetic echo in public opinion, and it is evident that the demand must be adequately met.

When it is considered that our educational system had to be created; that but few if any precedents were available; that the curriculum was in the first place an uncertain quantity and ever afterward a constantly changing one; that it had to be weeded out and added to as the conditions of professional progress necessitated these changes, it will be readily seen why the thought of dental educators has been mostly concerned with the technical side of the problem, rather than with the character of the material to which this educational system was to be applied.

Gradually, however, the fact has obtruded itself, that in order to successfully pass through the details of the curriculum demanded in representative dental schools, a certain degree of preliminary education is essential in order that the dental student may absorb and profit by his professional instruction. Hence the establishment of a standard of preliminary educational requirement and the progressive increase of that requirement toward the point where it logically belongs, namely, at the termination of the public high school course. I am well aware that a standard of preliminary education equivalent to high school graduation has not as yet been made generally obligatory, but that it will in the near future attain that point I do not for a moment doubt.

It is not within the purpose of this paper to discuss at length the desirability of, or objections to such a standard as representing the amount of educational attainment which should be required of every student entering upon the study of dentistry. To those who have carefully examined the problem with minds unprejudiced the reasonableness and propriety of exacting the equivalent of a high school education as the foundation upon which to build the superstructure of professional training, must be self-evident.

There is, however, a phase of the subject which it seems pertinent that we should investigate, viz.: the nature of the training which

furnishes the best basis for professional study in dentistry, and what kind of a high school course offers such a basis. An inquiry into this matter is opportune at this time because the adoption of the high school standard is an accomplished fact in New York and New Jersey, and I am perhaps betraying no confidences when I say that Pennsylvania is incurably inoculated with the same idea. With the precedent so well established other states will surely follow if only in self-defense. The inquiry is pertinent also for the reason that a high school standard is by no means a uniform standard, and therefore not all high schools fit a student as he should be fitted for taking up professional study.

*Preliminary Qualifications.* Those who have concerned themselves with the problem of educating students in dentistry have quickly realized the need for a proper foundation upon which to build; this need has been variously estimated or apprehended; but all observers have agreed that certain qualities, natural or acquired, were necessary in the student who was later on to become a successful practitioner; successful in the sense that he possessed those qualities of mind and hand which enabled him to correctly function as an exponent of his craft.

We are probably in agreement that the dentist must possess manual skill, i. e., the power to put into practical execution the suggestions of the brain in practicing the art of our calling. This implies necessarily the ability to reason accurately and logically; but the broadening of our specialty has created the necessity for a much more extended use of accurate reasoning and logical thinking than the mere art side of it ever did or can call forth.

The development of the field of dental and oral investigation in its relation to the study of the entire human system is rapidly placing dentistry in close analogy with the other departments of the great healing art and requiring at least an equal educational equipment of its practitioners. This educational equipment at its best, and it can only be so considered, demands a training which will develop the reasoning powers to the maximum limit, and make accurate observation and thinking the normal mental habit.

Is it the function of the dental school to furnish the training that will attain this much to be desired habit of mind? The very fact that we now demand a reasonably high standard of preliminary training furnishes the evidence of our belief that the dental curricu-

lum is a special system of training which at the utmost can be expected only to solidify and round out the educational result of the preliminary course of instruction. We must look then to the public school course or its equivalent to deliver to the dental colleges a product suitable for conversion into professional timber.

We have demanded a high preliminary standard and are, generally speaking, attaining our desire. Having achieved that important point, let us now inquire as to the quality of the standard, for surely in demanding a given quantity of preliminary training, it is implied that it shall be adapted to our purposes. A system of education to be of greatest use to the dental student must develop in him as nearly as possible those qualities which are to serve him best as a practitioner. This generalization is, I trust, broad enough to include those elements which are necessary to him as a well educated member of society apart from his technical professional training. For our present purposes we will agree that the high school course is sufficient to fit a man as an acceptable member of society. Our inquiry deals not with that question, but rather with the adaptability of the common school course as a training ground preliminary to the dental curriculum.

During three years of intimate connection with educational work in dentistry and a constant study of the educational problem in all its aspects throughout that period, two observations are presented as the outgrowth of that experience: first, that the gradual increase of preliminary requirements has not diminished the proportion of failures in course of the dental curriculum; second, that the students who as a class or group show the best general average of work are those whose preliminary education was obtained in the manual training schools. In asking you to consider the significance of these two statements, I desire in the first place that you will carefully note these observations are not offered as a criticism upon the high school standard as a measure of its quantity or degree of educational attainment, and second, that I am fully aware that the length of time as based is inadequate, as is also the relative numbers of students under observation, as the basis for forming a definite conclusion regarding the value of the preliminary standard. The observation, as stated, is therefore to be taken only as an indication of the lines upon which we may possibly suggest modifications of the standard which will best adapt it to our needs.

Perhaps no end of education is so important to the individual as its power to develop in him correct methods of reasoning and thinking. Any teacher who has experienced the difficulty of training students to intelligently reason about the problems which form the basis of his course of study will admit that the lack of that quality in the mind of the student is the most serious obstacle to his progress. To the student of dentistry the ability to think and reason correctly is a *sine qua non*, and unless the habit has been to a considerable degree established by his preliminary training, the dental course cannot partially create it. This principle applies to technical manual skill as broadly as it does to abstract scientific study, for unless the student reasons with precision he cannot execute with precision. How, then, is this essential mental characteristic to be secured for the dental student if, as will be admitted, I think, the professional curriculum cannot wholly supply it? Manifestly, we must see to it that the preliminary training of the student has, so far as may be possible, developed the requisite qualifications for entering upon the dental course, and endeavor to shape the requirements of our high school standard with reference to that end.

*True Meaning and Value of Manual Training.* I have referred to the value of this course as a preliminary to dental study. Nine years ago I presented to the First District Dental Society of New York some observations upon the "Manual Training Idea as a Factor in Dental Education," and I there endeavored to show the importance of that principle as a means of mental cultivation. Since that time not only has the manual training system become a regular factor in the dental curriculum, but as an educational means its value has been more generally recognized by the extensive introduction of that system into the common schools. There has been, I fear, however, a marked tendency in the practical application of the manual training method to subordinate ends to means; that is to say, the great value of the system as a method of *mind* training has been overlooked, and the cultivation of *manual skill* made the objective feature of the system. This is exactly the reverse of what the originators of the system intended, rendering its application not only wasteful of time and energy, but defeating its purpose as an educational method.

Let us take a specific case as illustrative of the two points of view under consideration: An elementary exercise commonly required in

the course of instruction in our manual training schools is that an iron casting roughly approximating a cube in form shall be dressed into shape by the student so that when finished it shall be a perfect cube as nearly as it may be possible to attain that result by the method employed. What is the educational purpose of such a requirement? Certainly not that the student may thereafter have the ability to make by hand cubes with mathematical precision of surface and angle, for if the thing produced were the objective feature of the process it would be, commercially speaking, more economical to produce cubes by special machinery, and the product would be not only cheaper but the output larger and on the whole better.

The objective feature of the exercise is then its educational value for the student who performs it. And, as I take it, the measure of its value is its efficiency as a means for compelling him to think and reason with precision and accuracy. Incidentally he develops a certain degree of manual skill, which is the physical analogue of the mental result attained by the same means. In the repeated endeavor which he makes to attain perfection, as prescribed by the conditions of his work, his brain is constantly bombarded, as it were, by sense perceptions of the uncompromising demand for accuracy, correct proportion, perfection of plane and angle, without which all his labor inevitably goes for naught. The educational value of the operation is clearly its power to impress indelibly and concretely upon the student's brain the ideas alluded to. The repetition of these impressions with respect to the varied experiences of a similar character in his course of instruction become finally broadened into principles capable of the widest application. Later they become fixed as elements of character and are the motive power which determines his attitude toward all of the problems of life.

It is my belief that an objective system of training, one which constantly impresses the developing mind with the uncompromising accuracy with which nature in all her phenomena strikes the balance between cause and effect, and deductively, the inevitableness of her laws, is the kind of training most needed to fit a student for professional training in dentistry, to say nothing of its cultural value in any department of life. What a showing our profession would make if all its members were imbued with the qualities of accuracy and precision in thinking and reasoning as well as with an adequate conception of the proportions and magnitude of the rela-

tionship developed by the phenomena with which they are called upon to deal!

If we are in general agreement that these are qualities which it is desirable for us to have as dental practitioners, then our inquiry should concern itself with the best methods for their attainment. It is perfectly evident that all high school courses are not adequately arranged for supplying this kind of mental qualification, nor would I wish to convey the impression that I regard the manual training school course as the ideal system for our needs. It is probable that a conservative blending of the best features of each system will more nearly meet our requirements. I am strongly of the opinion that in addition to the manual training studies, mathematics, language, literature, history and especially science studies should be made an obligatory part of our dental high school curriculum, if I may so designate it. With respect to science teaching in the public school course, President Eliot of Harvard has said: "A rational course in science, rational for the schools, because it affords a substantial training in observing, recording and reasoning, rational for the colleges, because it affords sound preparation for further study of science during college life—is a great desideratum."

With respect to manual training work, an eminent teacher in one of our manual training schools writes me: "We devote a little less than one-third of our time to manual work; nevertheless, we are very certain that our boys come to our culture work with a certain freshness of interest and an increased power of concentration developed by the manual training, which makes two periods of culture work with us count for almost as much as three periods in the ordinary high school course."

My object in presenting this subject for your consideration is to call your attention to what I believe to be the fact, namely, that a high preliminary standard is not all that the term *high* implies, unless it is also adapted for fulfilling its purpose, which in this case is to determine the intellectual fitness of a student to enter upon dental professional study. Further, while the termination of the high school course is the correct and logical point of departure at which to enter upon the dental course, not all high school courses furnish the best preparation for that purpose. Therefore, in consideration of the foregoing, I submit as my concluding proposition that the importance of the matter demands that we take up the consideration

of a plan of preliminary training for dental study which shall best meet our requirements, and endeavor to have our high school courses modified to that end.—*Items, Jan. 1900.*

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**COMPLETE NECROSIS OF ONE SIDE OF MANDIBLE.** By W. H. Dolamore, L.D.S. Eng. On Feb. 17, 1898, a boy, aged 4 years, was brought to the Dental Department of the London Hospital. He was healthy, the youngest of a large family of ten children, all of whom are alive and healthy with the exception of the child immediately preceding this boy, who was stillborn in 1889. The father and mother are alive and in good health. The boy had had no previous illness, except measles when he was a year old.

Five weeks before I saw him he had pain in the region of the lower deciduous molars of the left side. His face also began to swell. He came to the hospital the same day, and the following day had one of these molars extracted. The swelling continued and he seems to have attended as an out-patient till I saw him on the day above-mentioned. I would specially mention that there was no history of any trauma. When he attended his face was much swollen on the left side, and the skin was inflamed and red. From the left lower gum there was a profuse discharge of pus, and the remaining deciduous molar was loose, carious, and the pulp was dead. In the neighborhood of this tooth was also a loose fragment of dead bone. Gas was administered and the tooth and necrosed bone were removed. An antiseptic mouthwash and cod-liver oil were prescribed. I am satisfied that he was well looked after at home. During the few weeks following the discharge from the wound became more profuse, but happily it was fairly healthy pus, having but little smell. The face remained swollen and hard, but the inflammatory blush disappeared.

On March 26 the inner margin of the alveolus had separated and was removed, gas being again administered. Three days later a further fragment of bone was also removed. A few weeks later I removed the first permanent molar. This erupted prematurely, owing to loss of the enveloping bone. As it was very loose and much pus was escaping around it I thought it might help to keep up the trouble and was better away. The roots were of course but little developed. Although at times part of the wound showed signs of healing up, our hopes that the disease would limit itself



were doomed to disappointment. The boy continued to attend, to take cod-liver oil, etc., and to keep his mouth as aseptic as possible. We were also able to send him twice for a fortnight to a convalescent home in the country, with marked benefit to his health. But considering how his feeding must have been interfered with, and what a continuous stream of pus must have been running down into his stomach, it was astonishing how well and plump he continued. Still, it was obvious that the necrotic process was spreading, and we could but await the separation of further portions of the bone.

On Dec. 16 the outer alveolus was found to be loose as far forward as the symphysis. Moving this caused movement of the whole of that half of the bone including the ascending ramus, which was obviously dead and separate. As it seemed to me that an external opening would be necessary to remove this large piece of bone, I asked Mr. Roxburgh to see the boy with me. He suggested that while the boy was under gas for the removal of the anterior loose fragment he would examine the condition of the ascending ramus. However, when I caught hold of this anterior fragment I found that the traction was bringing out the whole necrosed fragment, so I removed the whole portion through the sinus in the mouth. The bone broke at the region of the mental foramen.

The boy was taken into the hospital, and though he had to be fed per rectum for a day or so he rapidly recovered. Before he left the hospital I had a skiagraph taken which showed that this half of jaw was in process of being reproduced by the periosteum. I was specially interested, when having this skiagraph taken, to see if any of the teeth of the permanent series remained. The evidence, as one would naturally expect, was negative. He was able to open and shut his mouth quite freely when he left.

In October, 1899, in response to a letter, he was again brought to see me, and to my astonishment I found that in the interval the permanent central and lateral incisor teeth, of the left side, had erupted, and were quite normal in their attachment. I saw the boy again on December 29 in order to obtain a photograph, but there were no signs of any more teeth erupting, nor does the bone, which is now thick and strong, show prominences suggesting the presence of teeth in it. Naturally one does not expect more teeth to erupt, but neither did we expect the incisors to have survived. The cheek still remains prominent, but it is perfectly soft and movable. The

tissues, as a result of their increased vascularity during the long inflammatory period, are merely somewhat hypertrophied. The temporo-mandibular joint was not affected. The movement at the joint is now perfectly normal; even during the period of the separation of the sequestrum the movement was as free as could be expected, considering the swollen state of the cheek; nor did the swelling extend over the joint. The disease stopped before it reached the articular cartilage, hence did not involve the joint. The old articular surface of the condyle will have become joined to the new bone.

For the sake of comparison I give a photograph taken from a cast of the face of a youth, aged 20, whose temporo-mandibular joint has been ankylosed from an early age, consequent on suppuration spreading from the middle ear, in which the suppuration was a sequel to scarlet fever. The unhappy youth was dumb and deaf and could neither write nor read. He refused to have the ankylosis treated by operation, probably never grasping the advantages held out to him. Here the whole jaw is diminutive. The chin recedes and there cannot be said to be an angle, certainly no angular process, whereas even at this early date the other boy has a well-marked angular process. In the one, owing to the lack of use, the jaw is withering away and the muscles are degenerating, and consequently their points of insertion; in the other the jaw has already developed considerably, and doubtless will continue to do so, for fortunately the teeth on the other side are efficient and the jaw and the muscles will be well used.

It is said by some that though new bone readily forms after necrosis of the lower jaw yet this tends to atrophy in time. In the museum of St. Mary's Hospital is a sequestrum comprising the right side of the body of the mandible as far back as the angle, and four years after its removal it is specially noted that the loss had been repaired by a strong bar of bone. It is difficult to see why such new-formed bone should have a greater tendency to atrophy when it is formed in connection with the mandible than when it forms elsewhere, always provided that it is used.

It is interesting, in connection with the question of the influence which frequent use exerts on the growth or maintenance of the shape of the jaw, to notice the effect which the wearing of dentures exerts in postponing that degeneration and alteration in shape which

the lower jaw usually undergoes in old age. I take it that the youthful appearance of our present-day old folk is not merely due to the presence of dentures, but also to these preventing the degeneration of the facial and masticating muscles, and consequently to the jaw retaining somewhat the form characteristic of adult life. As is well known, the typical shape of a senile jaw, together with the laxity of the ligaments of the joint, allows the two jaws to come together and so permits a certain amount of mastication of food. Now people who have worn dentures are frequently unable to bring the two jaws into apposition at all. I do not remember to have seen this point mentioned before; indeed my attention was called to it by a relative of over eighty years of age, by no means robust, rather the reverse. He has, it is true, never been without teeth, natural or artificial, for more than a few days, consequently his jaw and ligaments have probably never degenerated to anything like the extent typical of his period of life. In this fact is an argument, other reasons apart, in favor of inserting dentures soon after the extraction of the teeth. But I am at the present time attending a patient, about forty years of age, who is edentulous. She is unable to approximate her jaws nearer than three-quarters of an inch. Yet some years ago, when her teeth were all extracted and she remained for six months without artificial substitutes, she tells me that her jaws could meet; indeed it is only within the last few years that they had ceased to be able to do so. Apparently the ligaments, muscles and probably the bone, which is well formed, have recovered their normal shape and tone.

To return to the case under discussion, and to take the question of the cause of the necrosis. The history would point to two possible causes. The more probable is undoubtedly a septic inflammation spreading from an alveolar abscess under a temporary tooth. But the fact that the tooth is said to have been extracted on the day following the onset of the pain makes this curious. I cannot, however, eliminate from my mind the idea that the wrong tooth may have been removed. Certainly the one I removed five weeks later was a very possible cause of the abscess. It is at least possible that a dresser in the casualty department may have acted with more zeal than discretion, for it is not easy in a child of four, with a swollen face, to make sure which is the offending tooth, nor are dressers at a general hospital very competent judges. Again, both teeth may

have had an abscess, though this seems hardly likely. But even supposing the cause to be an alveolar abscess, we are again met with the difficulty of explaining why the mischief should have spread so far in a more than usually healthy child. In hospital practice alveolar abscesses under deciduous teeth are extremely common. In my experience they get well, even when left untreated, far more rapidly than abscesses under permanent teeth. Often, as is well known, the alveolus over the roots is absorbed and these are ejected, apex foremost. This is a condition certainly rare in adults; indeed, I remember to have met with only one instance, and that recently. During the last few years I have seen a large number of abscesses in connection with permanent teeth, which have been allowed to run their course till they burst externally, often, as I have verified, causing limited necrosis of the jaw under their point of exit. But though it may happen, it is rare to find abscesses in connection with temporary teeth bursting on the face; in other words, the pus soon finds an exit beside the tooth or on the gum, and the inflammation dies away. But although it is easy enough from our knowledge of the arrangement and attachments of fasciæ to predict where an abscess may burst, when once we know the point at which it has made its way through the jawbones, yet we have no knowledge as to what determines the direction in which it burrows through these. It is at least possible that in this particular instance the inflammation may have traveled inwards and downwards, and have involved, killed and rendered septic the developing premolar situated between the roots of the diseased tooth.

Given a necrosed, septic body buried in the jaw, we have the cause of a long-continued intense inflammation, which would readily extend through the bone, honeycombed as it is by the presence of the crypts of all the developing permanent teeth. I believe it to be an undoubted fact that the presence of these teeth is a potent factor in the comparative frequency of necrosis in children. We know well how the dental tissues are affected by a comparatively slight constitutional illness during the period of their formation. Given a severe local inflammation, whether this be of dental, traumatic, constitutional or other origin, it is easy to see that the formed tissue would be easily separated from the forming organ—in other words, the portion of the tooth already calcified would become a dead body, and hence be an irritant to the surrounding bone, possibly causing

more or less of it to necrose. And even if this explanation be not accepted, it must be granted that the enamel and dentin-forming organs provide a vascular path by which germs, etc., may travel widely through the substance of the bone.

The second explanation is that it was due to an infective micro-organism, causing acute suppuration either starting in the bone itself or in and around the developing teeth. Such cases are not rare in other bones, especially the tibia, and affect either the epiphysis or the diaphysis; there is often no previous history. In 1897 Mr. Roughton brought the notes of a case. The patient was seven years of age and the bone affected was the mandible. The patient died of pyemia. But although, as stated, I did not see the boy at the onset of the trouble, the account given does not lead me to suppose that the constitutional condition showed such marked disturbance as is characteristic of an acute infective suppuration in bones elsewhere, and as was present in Mr. Roughton's case. I have ignored the attack of measles as a possible cause. First, this was three years before the onset of the necrosis, when the boy was one year old; second, the jaw had been perfectly healthy in the interval, as was shown by the absence of any local symptoms, and by the normal eruption of the milk molars. It is interesting that so large a sequestrum could be removed through the mouth, and also that at least two developing teeth were left undisturbed. Undoubtedly this was due to the sequestrum being left until it was entirely separate. The boy may at least congratulate himself on the absence of scars on his face, and on thus retaining its symmetry, owing to the sequestrum keeping the parts in their normal place till the new bone had formed.—*Jour. Brit. Dent. Assn.*, Jan. 1900.

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EXPERIMENTS WITH NIRVANIN. By Dr. Robert Marcus, Dresden. In the last *Wochenschrift* Rottenberger called the attention of the dental fraternity to a new preparation, nirvanin. As I have had some experience with the article, I give my opinion of the same so far as my experiments will warrant. We selected the most difficult cases from among the material that came under our care. A number of extractions were made from persons of varying ages, after the use of nirvanin, with invariably satisfactory results. In 2 or 3 per cent of the cases absolute anesthesia was not attained, but a considerable degree of insensibility resulted from the use of

nirvanin. This may have been as much our fault as otherwise, resulting from too quickly applying the forceps. We brushed the gums with a 5 per cent solution of nirvanin, or applied tampons saturated to the gums, which produced the dual effect of anesthesia and antiseptis. According to Professor Einhorn and Dr. Heinz, a 1 per cent solution of nirvanin is sufficient to perfectly prevent the growth of bacteria. The gums were also injected to the periostium on both sides, the finger gently pressed on the point of injection to prevent an outflow of the liquid and to divide the injected fluid. I discourage the use of old solutions, preferring to make my solution at the time I wish to use it. For convenience sake I have had tablets of nirvanin made, each containing 0.25 gm., of which I dissolve one or two in 10 c. cm. of water for immediate use. About two or three minutes after this treatment forceps may be applied. No alarming nor dangerous symptoms nor aftereffects appeared or were ever noticed, and no difficulties of any kind resulted, except in the case of one patient who had a painless edema during one day. No pain is felt after the operation, and the process of healing is always normal. In all the cases the pulse was good. In several instances we used a 10 per cent solution of nirvanin to reduce the sensibility of the dentin with most gratifying results. After inserting a tampon saturated with a 10 per cent solution we could proceed with work in the excavations after a lapse of only two or three minutes. I advise adding 5 per cent of nirvanin to temporary fillings, and as a caustic paste for destroying pulps that is painless and at the same time antiseptic, I recommend the following: Arsenious acid, 1.0.; nirvanin, 1.0.; lanolin, q. s. to make paste. I have used nirvanin in several cases of pulp-capping, root-amputations and root-fillings, but prefer to reserve reports on these cases until later. Nirvanin, in conclusion, has proven itself in my hands a most effective and lasting anesthetic in the treatment of painful conditions of the mucous membrane of the mouth.—*Deutsche Zahn. Woch.*, No. 39.

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GENERAL SURGICAL ANESTHESIA AND ANESTHETICS. Dr. Ernest J. Mellish (*Medicine*, Dec. 1899) concludes a paper on this subject with the following propositions: 1. Chloroform almost invariably kills by its effect primarily upon the circulatory system, and ether by its effect primarily upon the respiratory system. There probably are exceptions to both of these rules, con-

sequently hair-splitting discussions on this point are unpractical and useless. 2. In anemia of the medulla the patient should be placed in the head-down position. In sudden paralytic dilatation of the right heart, as after several deep inhalations of chloroform, the heart should be rhythmically compressed by squeezing the chest, or the patient placed temporarily in the feet-down posture to empty the heart, artificial respiration being constantly maintained. 3. Anesthetics act directly or indirectly upon all the tissues, interfering profoundly with metabolism; and they tend to produce degenerative changes in the tissues, especially those of the vital organs. Of the anesthetics in general use, chloroform is probably most dangerous in this respect. 4. Deductions based upon laboratory experiments are apt to be deceptive, and should be accepted with the greatest caution in regard to sick human beings, unless they agree with conclusions based upon clinical investigations. 5. As a rule, ether produces less circulatory depression than chloroform. It causes dilatation of arterioles and increased capillary circulation, thereby insuring a good blood supply to the circulatory and respiratory centres and to the heart muscle; consequently these systems are in less immediate danger with ether than with chloroform. 6. Cocainizing the nasal mucous membrane to antidote certain bad effects of anesthetics is not a commendable practice. 7. On account of the reduction of body heat by anesthetics, they should be administered in a warm room, and the patient should be protected from loss of heat so far as practicable by proper covering of the body, by application of artificial heat and by protection from dampness of the skin. An excessively high room temperature will do harm by adding heat depression to anesthetic—and operation—shock. 8. Ether when properly administered is no more liable to produce nephritis than chloroform, perhaps not so much so. The changes produced in the kidneys by ether are as a rule temporary, while those caused by chloroform are apt to be more persistent. 9. Most of the pronouncedly dangerous effects of ether, and to a less extent of chloroform, upon the kidneys are due to poor preparation of the patient, faulty administration, bad after-treatment, or all of these combined. 10. Postanesthetic nausea is best prevented by preparation and after-treatment which favor normal physiological tonus, with especial reference to the emunctories. Gastric lavage at the termination of anesthesia, followed by vinegar inhalation, will in the great major-

ity of cases prevent serious disturbance from nausea. 11. The danger from hemorrhage is no greater with ether than with chloroform—perhaps not so great, since the bleeding which occurs from the effects of ether is primary and is more certainly provided against; while the circulatory depression and the vasomotor constriction due to chloroform to a great extent prevent primary bleeding and lead indirectly to later hemorrhage. 12. The safety margin between sufficient chloroform for anesthesia and the lethal dose is much narrower than it is with ether. 13. Patients should be well fed with easily digested and non-bulky food to within a few hours preceding anesthetization, and should be allowed water to within two or three hours of it. If this plan is followed, shock will be less and elimination of the anesthetic will be more rapid, and less harm is likely to accrue to the emunctory organs. For the same reasons water should be given as liberally as practicable after anesthesia. 14. Routine methods in selecting anesthetics should be avoided so far as practicable, the anesthetic being selected according to the conditions present in the individual case. 15. Any anesthetic, but especially ether, should be given with the greatest caution in the presence of special susceptibility to acute bronchial or pulmonary affections. 16. Further clinical investigation in the use of nitrous oxid is desirable and necessary, in order to establish its status in relation to surgery; but its general employment is not practicable. 17. The majority of inhalers on the market is bad. An inhaler made on the principle of the Esmarch chloroform mask is the cleanest, safest and best for ether as well as for chloroform. However, the "open method" of administering ether is not practicable in the tropics, at great altitudes, or in open-air military surgery, on account of too rapid diffusion. 18. The ordinary tongue forceps is a barbarous instrument and is often barbarously used. 19. The mouth-gag can usually be dispensed with; its use is often positively dangerous from forcing the base of the tongue against the pharynx. 20. The post of anesthetist is second only in importance to that of the operator, and the selection of an anesthetist should be made with great caution where possible. No person who has not a wholesome fear of anesthetics can be trusted to administer them. Beware of one who believes any anesthetic to be "perfectly safe." 21. The anesthetist should gain the complete confidence of the patient as to his ability and carefulness, so that the latter's mind will be at rest on these points. 22.



Patients who greatly fear anesthesia are the ones likely to give the most trouble to the anesthetist. 23. Other things being equal, the intelligent and educated take anesthetics better than those of low intellect. 24. The patient should be kept as free as possible from unnecessary noise and other disturbance during the induction of anesthesia. 25. The pupillary reflexes constitute the best guide to the presence or absence of surgical anesthesia. 26. The anesthetist should watch carefully the pupils, pulse, respiration, and the color and condition of the skin, depending upon no single symptom as a danger signal. 27. The patient should be carefully watched from the beginning of the anesthesia until fully restored to consciousness. 28. When anesthetics are properly administered patients seldom struggle. 29. Noisy breathing during anesthesia should be the exception, as it generally means faulty administration. 30. The minimum amount of anesthetic should be given consistent with the production and maintenance of the desired degree of anesthesia. 31. Compression of the phrenic nerve will, if properly done, usually control retching and kindred symptoms occurring during anesthesia. 32. The use of drugs preceding and during anesthesia should be avoided save where positively indicated, and if resorted to they should be used with the greatest care. It is best to depend almost wholly upon other means for the prevention of syncope or for resuscitation. 33. Anesthetic mixtures are in general less safe than the "straight goods." One cannot know the relative proportion of the different components that the patient actually inhales. 34. Partial or "talking" anesthesia is advisable in some cases, but should be avoided in delicate or sensitive patients, especially for prolonged operations, unless the anesthetic is taken quietly and with apparent abolishment of pain sense. 35. Finally, the subject of anesthesia and anesthetics should be thoroughly treated in medical colleges, and each student required to conduct a number of anestheses under the supervision of an expert.

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APOLLONIA, THE PATRON SAINT OF DENTISTRY. By C. N. Peirce, D.D.S., Philadelphia. Read before the Academy of Stomatology, Dec. 26, 1899. I have, by request, Mr. President, a very pleasurable function to perform. A lady member of this society, Dr. Mary H. Stilwell, desires to present to this organization

the photograph of a character as unique and interesting as it is ancient, and she has kindly requested me to be her spokesman.

Some of you may be somewhat familiar with the subject to be presented, but doubtless to most of you the history and character of Saint Apollonia, the "Patron Saint of Dentistry," will be novel. That dentistry, of all the branches or specialties of medicine, has a patron saint I assume is known to very few in the dental profession. A brief recital of the history so far as obtainable of this saint has an historical as well as a professional interest. She was the daughter of a heathen magistrate in the city of Alexandria. Her mother, although not a Christian, was inclined to look with sympathy on the believers in that faith, and, being childless, she asked, on being told of her great power, if the Virgin could grant her prayer for a child. She gave the pilgrims food and money, so, full of faith, she invoked Mary's intercession, after which the prayer was answered by the birth of Apollonia. To the child the mother often spoke of the wonderful power there was in the prayers of these people. It is not surprising, therefore, that Apollonia as she grew up felt more and more deeply that this alone was the one religion that could satisfy and ennoble her life. Longing to obtain the grace of baptism, she made her way to Saint Leonine, a disciple of Saint Anthony of Egypt, and as he baptized her he bade her go to Alexandria and preach the faith. So she went forth, and though she was only a woman, young and frail, yet so eloquent were her words, so fervent her zeal, that she made many converts. About this time a tumult had been stirred up in the city against the Christians, and the mass of the people were enraged at her preaching and came with bitter complaints to her father, who gave her up to be judged by the governor. They brought her before the idol temple and bade her worship the graven image. It is reported she made a sign of the cross, and there came forth from the statue an evil spirit shrieking, "Apollonia has driven me hence." This was more than could be borne, the people thirsted for vengeance, so they tried by torture to overcome her constancy. She was bound, and one by one her teeth were drawn out, but still she did not flinch or fear, and on her refusal to accede to the demands of her persecutors and renounce her faith, she was brutally clubbed about the head and face and subsequently suffered death by fire.

For a period of nearly fifteen hundred years her intercession has

been sought for relief from all pain incident to dental diseases, and her relics have been and are regarded as possessing great efficacy in the cure of the same. The canonization of Saint Apollonia took place about the year 300 A. D. On the 9th of February of each year she is commemorated. The so-called relics or remains of her head and jaws which were preserved from the fire into which she was thrown are preserved in various churches in the East and West. Church Saint Apollonia at Rome has a portion; in St. Maria Transiberina her head rests; in St. Lawrence, outside the walls, her arms; in St. Basil's, part of her jaws; while in churches at Naples, Antwerp, Brussels and Cologne portions of the bones or teeth are cherished. In Quebec we find also portions of a bone or tooth resting in some of the churches and viewed with veneration.

Furini has painted her in a picture now at Florence, Luini in Monastery Maggiore Milan, and in the Milan Gallery there is an altarpiece by Francesco Granacce, on one wing of which is an almost life-size figure of her. Underneath the picture at Florence is the story of her life, from the moment of the angelic call until her death. Procaccino has also painted her martyrdom, and she is also to be found in the works of that somewhat sentimental painter, Carlo Dolce. Chapels and altars in her honor are found in many of the Eastern and Western churches. Her distinctive emblems are the pincers and tooth; the latter, in some of the paintings, is hung by a gold chain around her neck as an ornament. Such records as we have been able to collect of Saint Apollonia give evidence of her dauntless courage, her perfect obedience to what she believed was the voice of God, and her fervent missionary spirit. Her story adds one more link to the long chain of heroes and heroines whose lives strike like sunlight across many a dark page of history.

The above short sketch has been obtained from "Gould's Lives of Saints," "Cassell's Dictionary of Religion," and a Letter of Dionysius to Fabius, Bishop of Antioch, published in the History of the Christian Church, by Eusebius, during the persecutions of the Christians at Alexandria, in the year 249.—*International, Jan. 1900.*

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**HYDRO-MECHANICAL THEORY OF SENSITIVE DENTIN.** By G. S. Junkerman, D.D.S., Cincinnati. Read before Ohio State Dental Society, Dec. 1899. Cataphoresis has its fling, being based on the supposition that it was a local anesthetic. Having

failed in this department of therapy it was eminently successful in another, giving a most excellent account of itself as a pulp-destroyer. Cataphoresis may not have brought to light the fountain of eternal painless dentistry, but its intimate study has caused a new light to fall, and while it may not have been the goal it certainly has been a pathfinder. Cataphoresis carries with it the thought of an osmosis, the track of dentin being an osmotic membrane, the pulp on one side and the external fluids on the other. We think of the dental tubuli but we forget the nerve fibrilæ. The accepted truths of cataphoresis prove the dental tubuli to be filled with fluid and not fibrilæ. The next step is to account for the phenomena of sensitive dentin, conceding the absence of fibrilæ.

Impressions must be conveyed to the pulp, which is the seat of all sensation in the teeth, by means of hydro-mechanics: pressure or motion of fluids in tubes. Picturing to yourself the principle of the hydrostatic paradox, and using the pulp-chamber with its contents as the vessel and one of the dental tubuli as the tube, we have a reproduction of the hydrostatic paradox. Pressure produced on the end of the tube will be equally distributed to the contents of the pulp-chamber, whether the pressure be produced by cotton or the stroke of an instrument. If you put a bundle of these together you have an osmotic membrane upon which impressions outward or inward may be made by any substance that will induce osmosis. Sugar and salt produce pain upon the pulp through these tubes by disturbing the equilibrium of the fluid in them, producing traction or compression. The condition known as teeth being on edge is another exemplification of the same principle. The continued use of acid when the teeth are "on edge" is not productive of pain, but the instant an alkaline food is brought in direct contact with the teeth the osmotic influence is changed, and a disturbance in the tubuli occurs with resulting pain. In furtherance of the same phenomenon, if a hard body, as the smooth surface of a steel instrument, be brought in contact with the "on edge" surface no pain results, and it in reality becomes a curative treatment of that condition, closing up the osmotic surface by compression. Nerve fibrilæ will not account for all the phenomena of sensitive dentin, nor is their existence consistent with the comprehension of a system of nutrition and circulation in the dentin and enamel. We do not comprehend this circulation as one of a general nature, causing the

waste and repair in the tissues of the teeth in general, but rather of a special nature, but nevertheless a circulation; just such a circulation as occurs in the terminal tissues in every part of the human body, a circulation by osmosis where the fluids are converted into the special tissues for which they are intended. That during the life of the pulp the dentin and enamel are supplied with nutritive fluid cannot be denied; conversely, after the death of the pulp these tissues manifest symptoms of inanition characterized by lack of translucency of enamel and increased chalkiness of the dentin. The same condition exists in old dentin and enamel where the dental tubuli have filled with lime salts and where the circulation has become wholly or partially strangulated, the pulp still maintaining its vitality. If we admit of a circulation in the enamel and dentin we have sufficient data to admit of a demonstration, without nerve fibrillæ, of sensitive dentin on the principle of hydrostatics and hydrodynamics. Upon this theory it is of interest to examine the phenomena of sensitive dentin. The greatest sensibility is found at the periphery or the line of junction between the enamel and dentin; because here we find the greatest number of terminals of tubules. Force produced at this point becomes magnified because it is transmitted to a greater number of tubules, and the pressure or motion of the fluid is in proportion to the number of tubes impressed. The periphery is at the greatest distance from the pulp and the pressure made here must be distributed through a greater number of particles of fluid and consequently magnified proportionately when it reaches the pulp. The force increases in direct proportion to the length of the tubes. Sensitive dentin is found most frequently and to the greatest extent in well organized teeth. In these cases we find a rank growth of the dental tubuli. There are a great number of tubules and there is also a greater tendency to anastomotic condition, the formation of a network, radiating towards the periphery. This condition increases the length of the tubule and consequently produces greater disturbance when force is applied. Conversely, a poorly organized tooth is less prone to sensitive dentin. The tubules are straighter and consequently shorter. There are also not so many of them, and those that exist may be broken by defective tracts that so frequently appear in poorly organized dentin. It does not necessarily follow that all well organized teeth have sensitive dentin nor that all weakly organized

teeth have lack of sensibility. The dental tubuli may have been infiltrated by calcareous matter, thereby destroying the fluid continuity, and in such cases well organized teeth may be operated upon without pain.

Poorly organized dentin may be extremely sensitive, not alone on account of the delicate state of general health increasing the susceptibility, but because the softened tissues permit more easily a slight amount of force to be distributed to the greater number of tubuli. As an example of this condition cervical cavities containing a layer of softened dentin are frequently sensitive only until this layer is removed. The application of the instrument to any part of the layer distributes the force through the entire surface which this layer covers. The therapy of sensitive dentin indicates the hydro theory to be correct. Heat and those other agents that are absorbers of moisture have proven the most beneficial ones. Anodynes not possessing these qualities have been failures. Cocain and cataphoresis should have anesthetized the nerve fibrillæ, but water and cataphoresis have been just as effective. The result in both cases was an osmosis, but the failure of any wonderful end, except to eventually destroy the real seat of sensitive dentin, the pulp. We have the remedies for sensitive dentin in anhydrous sulfuric acid, but other drugs in milder cases answer quite as well, but in the case of the stronger medicine we have not the power to limit the effect. Osmosis once established in the strata of dentin is not easily accessible to interruption. We look upon the fluid in the dental tubuli as not only a circulatory fluid for nutrition, as the blood for other tissues, but as the carrier of impressions accomplished by the nerves in other tissues. The equilibrium of these fluids is maintained by capillarity, disturbed by chemical reactionary changes and also by mechanical force; thus all this force is produced by the pressure or motion of fluid in tubes and owes its distribution to the laws of hydrostatics and hydrodynamics.—*Ohio Journal, Jan. 1900.*

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**CHLOROFORM IN DENTAL PRACTICE.** By F. A. Weld, D.D.S., Belvidere, Ill. Read before Northern Illinois Dental Society. This drug was simultaneously discovered in 1831 by Guthrie of the United States, Soubeiran of France, and Leibig of Germany. Its present name was given it later on by Dumas, and it was first used as an anesthetic by Sir James Simpson, of Edin-

burg. Chemically it is known as terchlorid of formyl, and is obtained by the action of chlorin upon alcohol—the methods employed being either the addition of chloral hydrate to an alkaline solution, or of chlorinated lime to ethyloxid. This is distilled and subsequently purified by the addition of sulfuric acid, sodium carbonate and lime, and redistillation is then resorted to. It was formerly supposed that this was a stable solution, but later it was found that even under ordinary circumstances, such as exposure to light and air, it had a tendency to decompose, forming hydrochloric acid and carbonylchlorid. The latter substance, according to our best authorities, is the cause in most cases of aftersickness, and can be avoided by keeping a little slaked lime in the bottle and filtering the supernatant liquid as required.

Though chloroform may be contraindicated in many cases where the period of anesthesia is to occupy an extended period of time, for, as Buxton says, "Chloroform, whether through poisonous effects on protoplasm or in some other way, exerts some deleterious influence upon the tissues of patients," yet for a *dental* anesthetic where the period of duration is to be short, it is perfectly safe. The great danger point is then at the very *beginning* of anesthesia, when it should be given slowly, to avoid paralysis of the respiratory and inhibitory centers. Then as soon as respiration and circulation are regularly established the patient should be pushed rapidly to complete anesthesia. Not until the third stage should any operation involving the fifth nerve be attempted on account of the danger of disturbing the centers already referred to.

Dr. Sayre, of the Bellevue Hospital, reports over 5,000 cases of chloroform anesthesia without serious symptoms in any case. His method, though, is apt to strike terror to the heart of an orthodox anesthetist who has been taught that ninety-five per cent air and five per cent chloroform were the proper proportions. Dr. Sayre says: "Use as small an amount of chloroform as possible and allow the patient to have no more air than can be helped which has not been thoroughly impregnated with chloroform." His reason for this being that oxygen being the natural antidote for chloroform will, if admitted when serious symptoms occur, immediately revive the patient, and also that the small amount of chloroform thereby required to produce anesthesia obviates the danger of blood and tissue change during the period.

The foregoing formulates the question: "How much chloroform is required?" The quantity varies with the patient. I have a container holding two ounces from which seven patients have been anesthetised, and in that proportion there is still enough left for at least three more. Some patients who seem particularly susceptible to its anesthetic action will not require more than twenty or thirty drops, while others require more, and after anesthesia is complete only a very small amount is required to keep them in that condition for any desired length of time, giving you ample opportunity of not only removing all teeth necessary but also roots which are imbedded in the gums.

The position should be recumbent and the forming of a mass or clot of blood in the throat avoided. The question of having recently eaten is of no importance, as vomiting seldom occurs. In fact our latest literature on the subject advises against its administration on an empty stomach, as the vapors, more or less of which will be swallowed by the patient, act as a local irritant on its mucous membranes. This is largely obviated by the presence of food.

The method I use is as follows: An ordinary face mask is covered with a heavy material to prevent the ingress of air to the patient. I prefer eiderdown with the "fuzz" inside. A bottle is then provided with a cork in which two longitudinal slits have been made, though one will do. If two are used one is for the ingress of air to the bottle, the other for the egress of chloroform which is carried to the mask in small drops by a piece of cotton. The drops being supplied slowly at first, with the mask held closely to the face, the sensation of strangling is avoided, and coughing and struggling are practically unknown.—*Review, Jan. 1900.*

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#### NEW TREATMENT FOR EMPYEMA OF THE ANTRUM.

By C. H. Nicholson, D.D.S., Rochester, N. Y. Read before union meeting of the Seventh and Eighth District Dental Societies of the State of New York, Oct. 24, 1899. The preparation referred to is protargol. I have called it a "new treatment" because while it has been on the market for a couple of years and has been used in general practice as a bactericide, especially in urethral troubles, to some extent in ophthalmic, and latterly in auricular practice, it has not heretofore been introduced into the field of odontological therapy. In addition to its efficacy I am glad to recommend its use for the



reason that it permits of a conservative line of treatment and the avoidance in many cases of radical operations, such as entering the antrum through the cuspid fossa, etc. In the cure of this troublesome disease, which I fear is too frequently passed over unnoticed by the general practitioner, or if it is forced upon his attention, the patient is too often referred to a nose and throat specialist for the cure of a trouble distinctly within the province of the dental surgeon.

Protargol is a silver proteid. A yellowish light powder easily soluble in water, forming a brown liquid, dark according to strength, of neutral reaction, and unaffected by exposure to air, heat or light. It is somewhat similar to argonon, but differs in that it contains twice as much silver as argonon (8.3 per cent) in firm organic combination, and is not precipitated by albuminous or sodium chlorid solutions, has extraordinary penetrating power, and is non-irritating. Solutions of from 2 to 25 per cent have been used in genito-urinary diseases, and 5 per cent for affections of the eyes.

My attention was called to it by a specialist in nose, ear and throat troubles, who had read of it being used in the middle ear with success. I immediately obtained a supply and used it in a case of empyema of the antrum I was then treating, which had proved unyielding to the usual methods of treatment, with the most surprisingly satisfactory results. My experience with this case may be best noted in the following report: A young man, George N., aged 28 years, was brought into my office by a prominent surgeon of one of our leading hospitals for examination, giving the following history: He had a carious tooth, upper right first molar, which had been troubling for some time, attended with fullness in the superior maxillary region, serious pain in the orbit with protrusion, frontal headaches, and some alveolar enlargement. Attracted by the glaring advertisement of one of our numerous "Dental Parlors," he called and consulted the proprietor, who attempted treatment of the tooth for alveolar abscess, which was continued for some days without success, and, the trouble becoming more aggravating, extraction was resorted to and the patient dismissed. Two days later he visited the parlors again, with pus and blood discharging freely from his nose and mouth. The proprietor was much alarmed, and told the young man he was likely to lose the side of his face, and advised him to consult the best doctor he could find. He went to the

hospital referred to, was examined, given some medicine, but went back the next day worse than ever; at this call he was seen by the chief surgeon, who at once brought him to my office for examination as stated above.

I found the alveolar process and floor of the antrum considerably fractured, with some necrosis, the membranous lining badly inflamed and highly painful to the touch of the probe, especially in the orbital region, but a large roomy cavity was presented particularly free from bony septa, having a free opening into the middle meatus of the nasal cavity. There was a liberal discharge of pus from the nose and alveolus, with a disagreeable odor and other characteristic symptoms. I of course diagnosed empyema of the antrum, and the surgeon kindly turned the case over to me.

Treatment was begun after removal of all necrosed bone, by douching the cavity with six ounces of a 2 per cent solution of sodium chlorid, followed with eight ounces of a 10 per cent solution of peroxid of hydrogen and a saturated solution of boric acid twice daily. This was continued for six days, with the result that the discharge was considerably lessened, the odor, headache, etc., had disappeared and the patient generally more comfortable. These injections were all introduced warm with a Eustachian catheter through the alveolar opening, free vent and drainage being obtained through the right nostril. I might say, in passing, that while all peroxid preparations are reported to be neutral, I found them strongly acid and very irritating to the mucous membrane in its then inflamed condition, especially Marchand's, Oakland a little less so, and McKesson & Robbin's 3 per cent pyrozone the least of the three I tried. I found by using pyrozone I could increase the strength of the solution to 15 and 25 per cent, and substituted the boric acid after the sixth day with Gilmore's germicide, which depends on formaldehyd for its antiseptic properties, had the patient call once a day, and directed him to procure a suitable bulb syringe and wash out the cavity with the boric acid solution two or three times daily. This I continued for a period of twelve days with a not very marked change in the character or quantity of the discharge, when I received the information of protargol as above stated.

After securing a supply of it, the cavity was thoroughly washed out with the saline and pyrozone solutions and about two drams of 10 per cent solution of protargol was injected, letting as much of

it as would remain. The patient was directed to call again in five days, and to continue the boric acid injections after forty-eight hours. On his return I was delighted to find a marked change for the better in all the remaining symptoms. The treatment was repeated and he was directed to call again in a week, when, after the most careful examination, I could find no trace of pus or any symptoms which had been present. I repeated the treatment, however, as a safeguard, reducing the strength of the protargol solution to 5 per cent, directed the patient to keep the alveolar opening thoroughly cleansed and allow it to heal, and dismissed the case. After the injection of the 10 per cent solution of protargol the young man complained of a severe headache which continued several hours; if you will shake the bottle containing the sample presented you will notice it filled with foam like soap-bubbles, and I am of the opinion that the distress experienced was due to the pressure caused by this rather than to any irritation from the drug itself; still, perhaps a 5 or 7 per cent strength would answer as well.

I can at least remove one objection to its use which at once occurred to me, that is discoloration of dentin. I have saturated pulp-chamber and canals of teeth with a 10 per cent solution, but find no discoloration, such as follows the use of silver nitrate.

Dr. Benario states that fresh cultures of *Staphylococcus pyogenes* were killed by a 2 per cent solution in twenty minutes, and those of the sixth generation were killed in fifteen minutes by a 0.5 per cent solution, and the action was more rapid in bouillon and serum than in sterilized water. So that I have strong hope that protargol will be found a most effective remedy in alveolar abscess and many other branches of our field of operations.—*Cosmos, Dec. 1899.*

\* \* \*

**ABRASION OF THE TEETH.** By A. H. Thompson, D.D.S., Topeka, Kan. Abrasion of the teeth must be sharply distinguished from erosion, but the two terms are often employed interchangeably in a manner that has led to some confusion. Erosion properly has reference only to chemical solution of the lime salts of the enamel and dentin, while abrasion is applied to wear of these tissues from mechanical agents only. The two processes are quite unlike, though the results may be somewhat similar, as in the wasting of the labial surfaces of the anterior teeth, where it is often difficult to distinguish one from the other.

Abrasion is therefore the wear and wasting of tooth structure from mechanical causes. This occurs in one instance upon the labial and buccal faces of the teeth from the friction of the toothbrush and a gritty tooth-powder. The wear from this cause is often quite destructive and results in the cutting of deep notches at the cervical borders of the enamel. The dentin is as smooth as if cut with a file and polished. Sometimes the dentin in these notches is quite sensitive, but not usually so. The remedy is to prepare the cavity properly and fill with gold, and then instruct the patient to use the brush with a vertical instead of the hard cross-motion, which was the prime cause of the destructive wear. The gritty tooth-powder must also be discontinued and one of a milder grade substituted; and also a softer brush with irregular cross ridges should be employed. Wear of the entire labial face of the anterior teeth may result from this cause also and must be corrected by the same change in the manner of brushing the teeth, i. e., the substitution of the vertical for the transverse motion in brushing. Effects similar to abrasion are sometimes produced by erosion, but the causes are very different. Caries may also attack the abraded places, but the active brushing usually prevents decay.

Mechanical abrasion of the occlusal surfaces of the teeth is of frequent occurrence. One of the most common causes of this is tobacco-chewing, the silica in the tobacco leaf acting as a most effective abrading agent. But tobacco-chewing is not the only cause, as many persons have abraded teeth who do not chew tobacco. The loss of the molars will throw the work of mastication upon the anterior teeth, which will consequently become worn for want of the support of the molars. Abrasion tends to produce that end-to-end occlusion which contributes to wear in a marked degree. The lower jaw becomes more protrusive and causes a distinct prognathism. In the first degree of wear the cusps are merely worn off, so that little islands of dentin are exposed and these soon become cup-shaped. In the next degree the cusps are fully worn down and the entire surface is cupped out to greater or less extent. In the third degree of wear there is destruction of the greater portion of the crown, with approach to the pulp and its dentinification, and recession, or exposure and death, and a broken and ragged condition of the enamel borders of the crown. As the teeth approach this condition the wear of the different tissues resembles somewhat

that of the herbivorous animals, where the different densities of the enamel dentin and cementum produce a constantly rough surface for the masticating of resisting vegetable fibre. The edges of the enamel in the extreme stages of wear are sharp and ragged, and are a constant menace to the tongue, which is frequently cut by them and sometimes severely wounded. Constant irritation from this source may sometimes cause the tongue to become the seat of cancerous growths. On account of this danger, in persons past middle life this sharpness must be carefully watched and corrected. In extreme wear the upper and lower teeth interlock, so as to form an almost invisible line of contact, which recalls the normal arrangement of the occlusion of the herbivora. The incisors and cuspids are also gradually worn down until the thick portion of the crown at the cervical third is reached and the tooth looks thick and wide. This appearance of the incisors and cuspids has led to the popular idea of old persons having "double teeth all around," which we often hear of in practice.

The remedy for this occlusal abrasion is to fill the worn depressions with gold so soon as the enamel is worn through and the dentin begins to present the characteristic cup-shaped point. This cup should be filled at once. When the wear has progressed to the second or third stages, covering with the gold cap crown will sometimes be necessary to protect the tissues and restore the teeth to their normal condition. This will often involve lifting the bite to a considerable degree and consequently restoring the contour of those teeth that are not so badly worn but they can be built up with gold.

These worn teeth are often very sensitive and this will require corrective treatment for the comfort of the patient and to permit of restorative operations. Cauterizing is the first and simplest remedy, by applying carbolic, nitric or sulfuric acids, nitrate of silver, chlorid of zinc, etc. Sometimes it will be necessary to use zinc phosphate by pressing well into the depressions, where it will stay more or less well. If it adheres for a week or so the cavity may be filled with less pain. If it does not stay well, owing to the closeness of the articulation, the cement will need to be reapplied as it comes off, and by this treatment the irritation can be gradually overcome. If not, or if the pain and irritation is of such nature as to indicate congestion of the pulp, this will of course need to be destroyed.—*Stomatologist, Jan. 1900.*

## Letters.

### BUFFALO LETTER.

*Dear Digest:*

BUFFALO, Feb. 16, 1900.

Our "Oom" Willie is again giving the reading public the benefit of his versatility. In the columns of the Buffalo *Sunday Express* his facile pen is painting a series of very impressive word-pictures upon Cuban life. After becoming shocked with a few volts of his charming descriptive, one would almost imagine that "Oom" Willie at some time had really visited the Gem of the Antilles, but so far as Pa Nam can learn, the charts used by the old-time mariners sailing the inland seas showed no Cuban ports of entry.

The Alumni Association of Buffalo has recently put up a strong claim for recognition. The enthusiasm of youth, backed by general merit, gave to the local profession a series of clinics and entertainments of great interest during their last meeting. Ottolengui, the romancer of our profession, was in fine fettle and received hearty applause. If the Alumni keep up the pace just set by them the City and Eighth District Societies will have to do lively stunts in the race for dental meeting honors or they will find themselves distanced.

The local harvest of blackmail levied by the International Tooth Crown Co. has not been a very rich one to date, so far as evidence goes. However, all Buffalo dentists do not enter the confessional regularly, and much must be left to conjecture.

Deliver us from the Crown patent opinions in Philadelphia. Is it possible that the S. S. White Co. is weak enough in its fancied strength to play into the hands of the International Tooth Crown Co.? These people, in the full interpretation of every analytical mind in our profession, are but a gang of blackmailers under quasi legal authority. Has not the dental profession of this country paid rich tribute to the Whites for years? This leads us to wonder if it is possible that the Crown Co. and the White Co. have any common interests. If not, what could possibly be the motive for the circular of misinformation recently given to the dental world by the White attorneys. But Pa Nam does not know, and the White Co. won't tell, so take your choice.

However, the writer has never hesitated, nor does he now, to

stand firmly upon the righteousness of compensation for brains' products. Genius should enjoy the rewards of its elaborations. The trailers, the hangers-on to the skirts of professional life, produce nothing upon which to advance. Yet they are the very ones to hold aloft their hands in an ecstasy of professional bunco-bosh and shout from the house tops: "If you have made a discovery which is valuable to our profession it is your duty to give it to us!" (Us! Oh! Rats of small growth!) Genius is God-given and but rarely bestowed, and to tell the truth, Pa Nam does not believe that nowadays the Almighty is looking for partners in any enterprise who are likely to squander his endowments among the leading pensioners upon humanity. Yet we must not be understood to be in any way abettors of fraud, and only as fraud, almost blackmail, do we regard the claims of the International Tooth Crown Co., no matter by whom indorsed.

You who inflate your lungs constantly with nature's purest air as it comes across the clean stretch of prairies can little appreciate our woes, but local genius and research (shears and love of "I am It") may yet save us, providing we survive the treatment. If you wild and woolly are not immune against microorganism colonization, just send for "the only sure-thing killer." You bet he is a killer—unless limited to one short speech each session. Buffalo will pay for transportation (one way; after that you keep it). Go join a trust, you peddlers of flim-flam wares, and leave us to remember you as first you appeared among us, fresh and innocent from the country, in your high-water pants and celluloid collar.

Yours truly,

PA NAM.

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A GOOD EXAMPLE FOR DENTAL SCHOOLS TO FOLLOW.—According to the *Vienna Klin. Rundschau*, Russia has decided to restrict the over-production of doctors by limiting the number of students received for the freshman year, at various medical colleges, to a number, ranging from 100 at Warsaw and Kasan to 200 at Kieff and 250 at Moscow and St. Petersburg.—*Jour. A. M. A.*

TO PRESERVE FORMALDEHYD.—In view of the widely increasing use of this substance, the following suggestions are offered for its preservation. Formaldehyd is a gas and its saturated aqueous solution is 40 per cent. In order to hold its strength it should be kept cool and at an equal temperature. Being an aqueous solution it should not be exposed to freezing temperatures. At low temperatures it becomes polymerized, causing a thickening of the liquid, due to a separation of the polymer.—*Lilly's Bulletin*.

# The Dental Digest.

PUBLISHED THE TWENTY-EIGHTH DAY OF EVERY MONTH

At 2231 Prairie Avenue, Chicago,

Where All Communications Should be Addressed.

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## Editorial.

### DENTAL PROTECTIVE ASSOCIATION.

The International Tooth Crown Co. have reached Ohio in their peregrinations, and we are daily in receipt of letters from members in that and other states, saying they are threatened with suit unless they settle, and asking what course shall be adopted. We would simply say to the members as we have several times in the past—Do not settle with the Crown Co. under any circumstances or on any conditions. Refer the Crown Company's agents to the Dental Protective Association, and we will take care of you. All important news will be given from month to month in these columns.

### NATIONAL DENTAL ASSOCIATION.

At the last meeting of the National Association, which convened at Niagara Falls, August, 1899, it was decided by vote of the members present to have the next annual meeting at Old Point Comfort, June 26, 1900. The usual date of gathering was changed in order to accommodate those who wished to attend the Dental Congress at the Paris Exposition. Now, however, these same men find that a later date will be more convenient, and the executive committee has been asked to change the time to one or two weeks later, either July 3d or 10th, preferably the latter. This can be done only by a vote of the Association, and we would therefore ask that every man who expects to attend the meeting shall send immediately to this office his preference regarding dates.

This discussion should not interfere with the officers and members of the sections, who we trust are preparing a good literary program. Last year's gathering set the pace and we must not fall behind in our achievements at the coming meeting.

### IT'S A WISE CHILD THAT KNOWS ITS OWN FATHER.

An unsigned circular letter has recently been mailed to the profession throughout the country. The DENTAL DIGEST has received



a copy, and despite our rule to ignore anonymous communications whose authors are unknown to us, we reproduce the entire circular, as follows :

**"TO THE TEACHERS IN THE DENTAL COLLEGES OF AMERICA.**

"For years it has been the almost unrebuked custom of disaffected and uninformed members of the dental profession to attack our colleges for every fancied evil from which it is believed that dentistry suffers. Every phase of personal envy and malignity has been vented on the schools, in wanton ignorance or reckless disregard of the fact that the reputation of the profession itself is indissolubly connected with that of its educational institutions. Unmerited calumnies have been iterated and reiterated in dental societies and dental journals, until a considerable proportion of the profession has been led to believe that to accept a position as a professor in a dental college is at once to leave the ranks of honest men, and to become grasping, avaricious, sordid, indifferent to professional interests and solicitous only for self.

"This defiling of their own nest on the part of certain dentists has gone on until the reputation of American dentistry has been debased to the lowest point in Europe. Formerly, when it represented not the tenth part of what it now does, dentists and dental students in great numbers flocked to American dental schools from abroad, and the American degree was anxiously sought. American dentists settled in all the principal cities of Europe, introduced American methods of practice, often secured the best clientele, and in a number of instances were appointed court dentists. The career of the famous Dr. Evans of Paris was but a more brilliant type of that of many American graduates. This naturally aroused the jealousy of foreign dentists, and for years foreign journals have caught up everything that has been published at home to the discredit of American schools, have circulated it widely and pointed it out as an evidence of our unworthiness, for as our professional status must be reflected in our colleges, all that is necessary to bring about the proscription of the one is to establish the worthlessness of the other. Especially has this been the case in England, where one never sees in the dental journals anything concerning American colleges, save quotations from the captious criticisms of disaffected and unpatriotic Americans.

"This evil has been further intensified by the speeches and writings of American dentists who desire to be honest, but who have taken for granted the discreditable denunciations of others, and believed them without demanding the proofs. By giving currency to shameful rumors they have unwittingly degraded their profession and debased their own professional status. The National Association of

Dental Faculties is striving earnestly to raise the tone of American dentistry at home and abroad, but it has been thwarted by the opposition of men from whom better things might have been anticipated. There are even editors of journals which depend upon professional support, who appear never to miss an opportunity to publish anything to the discredit of our educational institutions, but who never see anything to commend. Some injudicious teacher may in mistaken zeal to serve his college overstep the boundaries of professional propriety, but instead of extending to him that professional charity which it is the right of every man to receive until his motives and the circumstances of the case may become known, his fault is magnified and published to the world as another instance of the bad character of all our schools and teachers. The only excuse that can be offered for these aspersions of our professional reputation is that the editors in question know nothing of what is being done in our professional schools. They are either non-graduates themselves or they took their brief college course when dental education was yet in its infancy, and they have evidently not kept pace with the onward march of events.

"It is time that our schools and teachers begin to indicate the possession of some self-respect, and a desire to protect their good name by declining longer to support journals and supply-houses whose organs are engaged in maligning our institutions of learning. This is the only way by which a stop can be put to these malicious attacks, and no dean of a college should hesitate to employ it. Swayed entirely by the mercantile spirit, and governed by mercantile interests, if these men will not respect our professional institutions they are not entitled to our patronage. No college man will object to honest and candid criticism, because we cannot always be the first to perceive our own defects, and are enabled to profit through having the imperfections of our educational system kindly pointed out.

"But during the past year at least two of our dental journals have given editorial prominence to accusations, or what is worse, to covert insinuations, that our colleges are unworthy professional support, and that men who have done more to elevate their calling than their detractors can ever hope to accomplish have been animated only by the most sordid considerations. Not a word has been said in condemnation of the fraudulent schools that have been selling their diplomas abroad, but every bitter attack has been reserved for the colleges which are doing their utmost to bring about a better educational condition. Teachers with whose reputation our professional good name is inseparably connected have, by implication, been charged with the most miserable inefficiency, and their experience, in some instances that of more than a generation, has been utterly condemned by self-elected critics whose every written sentence proclaims their entire ignorance of everything educational. All

teachers and schools have been classed together and charged with the most offensive advertising, and the testimony of the outcasts of dentistry has been accepted and published as sufficient proof of the unworthiness of men whose honor is untarnished in the minds of those who are without personal bias.

"This professional throwing of mud must cease. Every self-respecting teacher should begin to resent the malicious and prejudiced disparagements that are instigated by anything save a desire to serve the profession of which these men are unworthy representatives, or are prompted by a reprehensible ignorance of what must inevitably be the effect of their unprofessional course of conduct. It is hoped that, recognizing this, our colleges will withdraw all support from these journals and supply-houses that persist in misrepresenting our institutions of learning and debasing our professional reputation, until wiser editors are appointed, or those now in charge of these mercantile organs shall have made themselves better acquainted with our professional affairs."

It is not our purpose to magnify the importance of the poor cowards who wrote this screed and were ashamed to own their offspring. We neither know nor care who the authors are, but some interest attaches to the subject matter of the circular because it voices a dangerous sentiment.

Intelligent criticism is always constructive, never destructive. According to the puerile sophistry of this circular the science and practice of dental surgery in America rests upon such an insecure foundation that its power and prestige can be swept away by criticism. Such an audacious and slanderous statement cannot be entertained for a moment by any well informed man here or abroad. Who is the best friend of art? The long-haired men and the short-haired women who cover every new artist and production with their slobbering praise, or a great critic like the late John Ruskin, who desired every achievement in art or science to be merely a stepping-stone to higher and better things? Immunity from criticism is the death of progress. The idea that "the king can do no wrong" no longer obtains in civilized countries. Honest, fearless criticism is a constructive force that creates and upbuilds. Flattery is the cloying food that lulls the pampered stomach of the degenerate into swinish sleep. Great men and great institutions welcome intelligent criticism as the measure of their success. Self-sufficiency is only a synonym for decay.

On the other hand, mere abuse recoils upon the head of its author. If a journal should continually snarl at the heels of pro-

gress and oppose every new method or discovery, it would soon find itself without readers, because they would readily recognize it as an enemy of the profession. On the contrary, dental journals that always say safe things, that predict frost in January and flowers in June, can never wield any influence. To be always "eloquently satisfied with things as they are" may please the monopolistic managers of a trust, but journals conducted on this line are sure to be poor, emasculate things, unworthy the serious consideration of strong men. In this connection we notice that two of the organs whose editors invariably sneeze in concert when their trust masters take snuff, hasten to commend this unsigned circular. The *Dental Review* says, "This sounds reasonable." Perhaps the editor lacked the courage to say more. While the editor of the *Indiana Dental Journal* clasps his pious hands over his trust-filled paunch and sacrilegiously exclaims, "And to this we say, Amen." We feel constrained to remark that next in criminal responsibility to the man who utters an anonymous slander are the feeble apologists for his act.

Were the circular not under the stigma of bastardy we should ask its author for a bill of particulars. We assume, and are rather proud of the assumption, that the DENTAL DIGEST is one of the principal objects of attack, presumably because we have dared to point out some existing evils. What has this journal ever said or done to the injury of dentistry in this or foreign countries? Have we criticised the colleges *per se* or have we attacked a few abuses that have from time to time fastened themselves upon some of the educational institutions of this great profession? The DIGEST always has been and is now standing for the right, and will always dare to fearlessly criticise any wrong-doing, believing that our action will redound to the benefit of the whole profession.

It is unfortunately a fact that American dentistry has fallen into some ill-repute in Europe during recent years, caused chiefly by bogus diplomas which have been sold over there by disreputable institutions in this country. To charge that this deplorable condition is due to the men of broad ideas and noble impulses who have pointed out and criticised shortcomings, with the sole aim of improvement, is too preposterous and biased to be considered. Nothing could ever lower the standing of American dentistry and the reputation of American dental colleges, both here and in Europe,

so much as this slanderous anonymous circular, which will certainly be ascribed to those in charge of the colleges. The great majority of the members of the National Association of Dental Faculties are men of high ideals and unimpeachable character, and we do not believe for one moment that the wretched screed was issued with their consent. Some one or more of their number must have perpetrated it, however, and what must the dental profession throughout the world think of our institutions when even one of our educators will stoop to such methods?

In conclusion, we cannot refrain from alluding to the pusillanimous threat of a boycott recommended by the poor blunderers. Because this journal and eminent men have dared to stand for the right, that ridiculous and un-American mode of warfare, the boycott, is urged—not by an Irish walking delegate to striking hod-carriers, but by those who call themselves educators. What an elevating influence this will have on the young men in their charge.

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## Notices.

### VERMONT STATE DENTAL SOCIETY.

The twenty-fourth annual meeting of the Vermont State Dental Society will be held at St. Johnsbury, March 21-23, 1900. A cordial invitation is extended to all dentists.

THOS. MOUND, Sec'y, Rutland.

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### NATIONAL DENTAL ASSOCIATION.

The annual meeting of this organization will be held next June at Old Point Comfort, and the clinic committee are very desirous of making this branch an important feature. The majority of the clinics will be given on models, making what is known as table clinics. Anyone having anything new or original that they would like to present will confer a favor upon the undersigned by communicating with him at once.

T. P. HINMAN,

Inman Building, Atlanta, Ga.

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### LATEST DENTAL PATENTS.

- 32,154. Design, handle for dental instrument, William E. Harper, Chicago.
- 641,672. Dental clamp, Walter I. Brigham, South Framingham, Mass.
- 641,980. Artificial tooth, Robert Brewster, Chicago.
- 642,114. Toothbrush, Charles L. Hall, Oconto, Wis.
- 642,404. Head-rest, Basil M. Wilkerson, Baltimore, assignor to S. S. White Dental Manufacturing Company, Philadelphia.
- 642,405. Dental chair, Basil M. Wilkerson, Baltimore, assignor to S. S. White Dental Manufacturing Company, Philadelphia.

- 642,586. Combined dental engine and chair, Charles C. Southwell, Milwaukee, Wis.  
 642,959. Head-rest, Alexis E. Caron, assignor to T. E. Caron, Kankakee, Ill.  
 643,086. Dental articulator, James W. Bryan, Russellville, Ky.  
 543,039. Dental plugger, Cecil L. Calvert and E. Anderson, Sundance, Wyo.

## TRADE-MARK.

- 84,072. Tooth paste, Thymo Chemical and Mfg. Co., Columbus, O.

Copies of above patents may be obtained for 10 cents each by addressing John A. Saul, Solicitor of Patents, Fendall Bldg., Washington, D. C.

## MASSACHUSETTS BOARD OF REGISTRATION IN DENTISTRY.

A meeting of this board for the examination of candidates will be held at 568 Tremont street, Boston, March 21, 1900, at 9:30 a. m. Examination in operative dentistry at 10 o'clock. Each candidate must come prepared with rubber dam, gold and instruments, to demonstrate his skill in operative dentistry. Anyone who wishes may bring his patient. So far as possible patients will be furnished.

The theoretic examination will include operative dentistry, prosthetic dentistry, crown and bridgework, orthodontia, anatomy, histology, surgery, pathology, materia medica, therapeutics, physiology, anesthesia, chemistry and metallurgy, and will be held at Civil Service Rooms, State House, commencing Thursday, March 22, 9:30.

All applications, together with the fee of \$20, must be filed with the secretary of the board on or before March 14, as no application for this meeting will be received after that date.

*Candidates who have taken an examination, and desire to come before the board again at this meeting, must notify the secretary as above in order to be registered.*

G. E. MITCHELL, D.D.S., Secretary,  
 25 Merrimack street, Haverhill, Mass.

## INTERNATIONAL DENTAL CONGRESS. REPORT OF TRANSPORTATION COMMITTEE.

The Sub-Committee on Transportation has completed arrangements with the well-known tourist firm of Thomas Cook & Sons, No. 251 Broadway, New York, so that dentists who expect to attend the Congress to be held in Paris, commencing August 8, 1900, may secure for themselves and families steamship and railroad tickets and hotel accommodations at the minimum of expense and trouble.

In making these arrangements the committee has taken into consideration that while some of the delegates may wish to secure only transportation from New York to Paris and back to New York, many delegates will wish to visit other parts of Europe during the summer, and they have planned the following tours to assist such in the selection of a trip that the time at their disposal and their means may suggest.

*Tour 1. A.* From New York by the Red Star Line steamer "Friesland" on July 18 for Antwerp, thence by rail via Brussels to Paris, returning same

way to New York. First-class passage providing berth at minimum rate for two-berthed room, \$157.85.

If traveling second-class from Antwerp to Paris and return, fare would be \$4.65 less.

By traveling on steamers "Kensington" or "Southwark" of same line fare would be reduced.

*B. Via Cherbourg.* From New York by North German Lloyds steamers "Barbarossa" and "Friederich der Grosse," sailing July 12 and 19 respectively for Cherbourg, thence by rail to Paris and return same way (twin screw service only). First class passage, providing berth in room for two persons (minimum rate), \$177.

*C. Via Cherbourg.* From New York by Hamburg-American line steamers "Pennsylvania" and "Pretoria," sailing July 14 and 21 respectively to Cherbourg, rail to Paris and return via Boulogne-sur-Mer and Hamburg-American steamer (twin screw service) to New York. First-class passage, providing minimum fare for berth in room for two persons only, \$184.25.

Lower fares can be obtained if occupying berth in room with two or three other occupants.

*D. Via Boulogne-sur-Mer (Holland-American Line).* From New York by twin screw steamers "Potsdam," "Staatendam" and "Rotterdam," sailing July 7, 14 and 28 respectively to Boulogne-sur-Mer, thence by rail to Paris and return same way to New York. First-class passage, providing minimum fare for berth in room for two passengers, \$163.

If traveling second-class from Boulogne to Paris and return fare would be \$3.80 less. Lower fares can be made by leaving on steamer "Sparndam" July 19. Tickets can also be arranged via Southampton or Liverpool at proportionate rates.

*Tour 2.* To provide hotel accommodations in Paris for two weeks (14 days and 13 nights) at Grand Hotel du Trocadero, carriage drives for three days, including excursion to St. Cloud and Versailles, 20 tickets of admission to exposition and transfers to and from railway station to hotel, \$65.

*Tour 3.* One week's tour to Switzerland from Paris, visiting Lucerne, Interlaken, Thun, Berne, Lausanne, Lake Lemman, Geneva, including hotel accommodation, sight-seeing, etc., second-class R. R., \$50.

*Tour 4.* One week's tour from Paris to Mayence, thence by steamer on Rhine to Cologne, rail to Amsterdam, The Hague, Rotterdam, Antwerp, Brussels, Antwerp, Harwich, London, including second-class railway travel, first-class on steamers, hotel coupons (3 meals per day with lodging), \$42 50.

Those traveling via Cherbourg can return by steamers of same line from Southampton, and so make short tour from Continent through England in connection.

There is a U. S. revenue tax of \$5 upon each ticket, regardless of the number of passengers in whose name it may be made out.

Should any one wish to make a longer tour than any of the foregoing, or one with a different route, Messrs. Cook & Sons have such a large variety of tours already planned that there need be no difficulty in making a selection to suit the taste, means or the time at the disposal of any one.

The war in South Africa has caused the withdrawal of many of the English steamships. Passenger accommodations across the Atlantic will be more limited than usual this summer, while the Paris Exposition is attracting great numbers, so that the committee wish to impress upon delegates the great importance of securing their steamship accommodations at once.

Address all communications regarding steamships, railroads, hotels, etc., to Messrs. Thomas Cook & Sons, 251 Broadway, New York.

A. W. HARLAN,  
W. E. GRISWOLD,  
W. W. WALKER,  
WILLIAM JARVIE (Chairman),  
Transportation Committee.

## News Summary.

DON M. GALLIE of Chicago had the misfortune to break his leg recently.

S. P. LARMER, a dentist at Albany, Mo., died Feb. 19, 1900 aged 63 years.

E. B. MARSHALL, a dentist at Cedarton, Ga., committed suicide on Feb. 8, 1900.

B. F. GANGEWERE, a dentist of Bethlehem, Pa., died Jan. 29, 1900, aged 55 years.

PRACTICING DENTISTRY without a license cost a Kansas City dentist \$100 recently.

E. B. HITCHCOCK, a dentist of Newton, Mass., died Jan. 26, 1900, at the age of 45 years.

ALBERT CRAIN, a dentist of Syracuse, N. Y., died suddenly of hemorrhage, Feb. 11, 1900.

L. G. THORPE, a dentist of Akron, Ohio, has secured a patent on a novel fruit-jar covering.

MISSING.—First Dental Drummer: How did you find trade on the road?

Second Ditto: Didn't find it.

ABSOLUTELY PURE WATER for the sterilization of instruments prevents dulling the edges of cutting instruments.

WHO WILL SATISFY HIS WANTS?—The *Chicago Tribune* of Feb. 18 contains the following: "Wanted—A dentist's diploma from some reputable college."

ODONTOLOGICAL SOCIETY OF THE WASHINGTON NATIONAL UNIVERSITY held its fifth annual banquet Feb. 18, 1900. Forty-five dentists were present, and the gathering was a great success.

DR. EVANS' HOUSE FOR ROYALTY.—The city authorities of Paris have rented the house and park given to the late Dr. Evans by the Empress Eugenie, and will use same for the accommodation of the royal guests during the coming exposition.



**BARBERS IN CLEVELAND** have been pulling teeth recently and the state board has had them indicted. Some unlicensed dentists were also caught in the dragnet.

**WASHTENAW (MICH.) DENTAL SOCIETY** at its last meeting elected the following officers: President, J. A. Watling; Vice-President, W. H. Jackson; Secretary and Treasurer, R. B. Howell.

**OAKLAND (CAL.) DENTAL CLUB** elected the following officers at its meeting Feb. 7, 1900: President, Geo. H. Carleton; Vice-President, H. G. Chappel; Secretary, O. R. Van Amringe; Treasurer, W. F. Lewis.

**CHLOROFORM CAUSES DEATH.**—A woman at Lorain, O., died Feb. 18, 1900, after an administration of chloroform given previous to extraction of several teeth. It is thought she had heart trouble.

**PITTSBURG DENTAL SOCIETY** at its last quarterly meeting Jan. 25, 1900, elected the following officers: President, C. J. Reynolds; Vice-President, Geo. L. Simpson; Secretary, W. L. Fickes; Treasurer, Geo. R. Shidle.

**IN POOR TASTE.**—The obituary of a Brooklyn dentist tells us that he was a member of a mineralogical club, and he might fittingly have been a member of the stonecutters' union or the plumbers' alliance.—*Boston Journal*.

**DIFFERENCE OF OPINION.**—Little Clarence: Papa, what is the difference between firmness and obstinacy?

Papa: Merely a matter of sex, my son.—*Jour. Med. and Sc.*

**FRANKLYN L. CALDWELL**, a dentist employed in New York by Dr. E. P. Hayes, proprietor of Siegel-Cooper's dental parlors, shot Mrs. Hayes and himself on Feb. 24, 1900, both dying instantly.

**HYPOCHONDRIAC PROGNOSIS.**—A woman whose doctor asked after her health replied dolefully: "I feel very well; but I always feel bad when I feel well, because I know I'm going to feel worse afterward."—*Med. Council*.

**SIMILAR SYMPTOMS.**—Percy (fervently): Does your father suspect that you love me?

Ethel (ecstatically): No, Percy; he—he—thinks I've got malaria.—*Puck*.

**ARMY DENTAL BILL.**—On Saturday, Feb. 17, the House Committee on Military Affairs gave a hearing on the bill to provide a dental surgeon for every regiment in the army. The bill was to be further considered last week, and it is understood that the committee report would be favorable.

**R. L. POLK & CO.**, Detroit, publishers of the Dental Register of the United States and Canada, request that all practicing dentists notify them of removals, deaths, newcomers and new dental societies organized in their vicinity. This information will materially aid in revising the register.

**EDITORIAL GAME LAWS** are stated in an Eastern publication to be as follows: "Book agents may be killed from Oct. 1 to Sept. 1; spring poets, from March 1 to June 1; scandal-mongers, from April 1 to Feb. 1; umbrella borrowers, from Aug. 1 to Nov. 1, and from Feb. 1 to May 1. Every man who accepts a newspaper for two years and on being presented with the bill says, 'I never ordered it,' may be killed or the spot without reserve or relief."

**ILLINOIS STATE BOARD SUED.**—A woman in Chicago recently filed a petition in the supreme court asking that the state board be compelled to issue her a license, inasmuch as she had successfully passed the examination, and the board discriminated against her because of her sex. The board replied that the plaintiff had made a signal failure in taking the examination, and the case has been dropped.

**SKULLS AND BRAIN CAPACITY.**—Professor Arthur Thompson, in the October number of *Knowledge*, deals with the form of skulls and brain capacity. The average weight of a man's brain is about fifty ounces, that of a woman about forty-five ounces. This difference between the sexes is less marked in savage than in civilized races, and is apparently explained by the fact that in the higher races more attention is paid to the education of the male than the female, and consequently the brain is stimulated to increased growth.—*Med. Record*.

**INDIANA STATE LAW SUSTAINED.**—Last month we remarked that an unregistered dentist in Indiana who had been convicted in the police court had appealed to the criminal court. The judge of the criminal court on Jan. 27 at Indianapolis has sustained the dental law, although he believes it to be unconstitutional, "as it takes from the executive and administrative departments of the state the right to appoint to office, and places the appointment of officers of a state board in a private corporation." The judge felt, however, that the supreme court could and probably would hold the law constitutional, so he decided against the unlicensed dentist.

**EQUAL TO THE OCCASION.**—"Can you minister to a mind diseased?" asked Blueglum, wearily. "Can you give me a nepenthe that will drive away from brain and heart memories of a desolate past and forebodings of a dreary future?" And Pilmixer, pharmacist, said he hoped to die if he couldn't, and compounded him straightway a little dose of quinin, wormwood, rhubarb, castor oil, pain-killer, ipecac, garlic and cayenne pepper, mixed it up in a quassia cup with a little pine-top whiskey, and told him to drink it down and see if he could remember anything for a week.—*Burdette in Brooklyn Eagle*.

**OBSTINATE HICCOUGH.**—H. E. Belcher, M.D. In my hands, and in others, this method has proved instantaneously effectual. It is the administration of half a dram of ext. ergotæ liquidum. The case in which I used it was that of a young man engaged in business, but with great difficulty, as he was unable to speak five words without being interrupted by a hiccough. This had continued for some hours when I saw him casually. On my suggestion he sent for a draught containing 2 drams of ext. of ergot and 1 dram of sodii bicarb., to be taken in four doses at half-hour intervals. He, however, only took one dose, as he did not hiccough once after it.—*N. Y. Lancet*.

**WISCONSIN STATE BOARD IN DANGER.**—M. J. Rice, a dentist at Sparta, Wis., was refused a license by the state board because they claimed that the diploma which he held from a Kansas City institution was unrecognized and that said school sold diplomas for \$5. Dr. Rice brought a mandamus suit to compel the board to issue him a license, and then started in to lick the examiners. Rice, so far as weight is concerned, belongs in the Sharkey and

Jeffries class, while the man he attacked, Dr. W. H. Carson, would weigh in with Dixon and McGovern. The next morning Rice was fined \$5 and costs in the police court.

**SUBMITTED.**—A Southern planter went to New Orleans several months after General Butler had taken the reins in his hands and acquired a reputation for "tyranny." One of the first things he saw was the placards of a furnishing store posted on walls and fences: "Get your shirts at Moody's." The planter saw it again and again, and mused deeply upon it. "It's another of Butler's orders," he said to himself. "He's probably a partner in the concern, and what he says goes; so I suppose it's best to submit. I don't need any shirts, and it's a shame to be compelled to buy 'em now; but I don't want any more trouble." He accordingly went to Moody's and bought half a dozen shirts.—*Keystone, Philadelphia.*

**PLASTER OF PARIS IN TRACING AND OPENING FISTULAS.**—Dr. J. F. McCone of San Francisco sets forth a new method of surgical procedure, which is, that in ischio-rectal fistulas the fistulous tracts and canals be injected with soft dental plaster of paris, that it be allowed to harden, and that the fistula and its ramifications could then be more easily and effectually dissected out, leaving a clean, fresh wound, which would heal by first intention. He had employed the method in one case with entire satisfaction. His colleagues, however, suggest a number of objections to the procedure, and according to the discussion reported in the *Occidental Medical Times* it does not meet with ready acceptance, though it has some utility.

**CELESTIAL ANATOMY.**—Sherlock Holmes, the great detective, had reached the gates of heaven; St. Peter was indeed pleased at his advent, as he was sorely puzzled because Adam and Eve had somehow been admitted by mistake, and he was unable to identify them. Holmes, after offering his services, instructed St. Peter to line up all the male and female angels in separate columns, devoid of their celestial robes, and promised soon to identify the unwelcome guests. After a tour of inspection he returned to St. Peter in triumph with the announcement that he had located the desired parties, and immediately pointed them out. When asked about his method of identification Holmes said, "Why, that's easy; they're the only ones amongst all present *without navels.*"—*Factotum.*

**IOWA WISHES EXAMINATION TAX INCREASED**—The Iowa State Dental Society will introduce a bill during the present legislative session to increase the examination fee for entering the practice of dentistry in the state from \$10 to \$25, and to abolish the annual renewal fee of \$1 now in vogue. The bill will also provide greater restrictions than at present governing dental schools. It also seeks to provide a special board of examiners, to be appointed by the governor, from a list made out by the state society. The meetings of the board are to be made public. The board is to make its own rules, and each member is to receive \$5 per day for actual work. The secretary-treasurer shall receive \$200 per year, and all money taken in beyond necessary expenses is to be turned into the state treasury, and all bills audited by the auditor of state.

**NASAL CATARRH.**—One of the best alkaline, detergent and dissolvent solutions is the following:

R Bicarbonate of sodium.....	5 grains
Biborate of sodium.....	6 grains
Chlorate of sodium.....	6 grains
Bicarbonate of potassium.....	6 grains
Distilled water.....	1 fluid ounce

An excellent solution to allay irritation following operations and in acute inflammations is equal parts of the aqueous extract of hamamelis and distilled water, used at a temperature as high as can comfortably be borne. The alkaline solution should be used only in chronic conditions.—*Kytr Inter. Med. Mag.*

**WHAT CONSTITUTES AN ACCIDENT.**—A man died not long ago in Vermont in consequence of perforation of the intestine by sharp fragments of some indigestible material swallowed with the food. He was the holder of an accident policy insuring him, according to the usual formula, against "bodily injury sustained through external, violent and accidental means." The company refused to pay on the ground that the cause of the man's death was not an accident, but the court has decided that this was an accidental injury within the meaning of the policy. In New York state it has been decided that the taking of poison by mistake is not an accident in the meaning of a similar insurance policy, but in Illinois the courts have ruled exactly the opposite.—*Med. Record.*

**MICROBES IN THE BEARD.**—Dr. Schoull of Tunis has discovered that the beard is simply a "happy hunting-ground" of bacilli. He has proved it upon the guinea pig which he has inoculated with the "material obtained from beards and mustaches," with results distressing to the guinea pig and alarming to those who had been in more or less contact with the beards and mustaches aforesaid. This is a very disagreeable discovery, and may seriously affect the popularity of a form of facial adornment which has hitherto been regarded as open to no other objection than that it is a nuisance to its wearer when in the act of taking soup. But what are a few shreds of vermicelli compared with a whole army of able-bodied bacilli lying in ambush for their victims, and, what is more, ready to make victims of anybody who happens to come within their range?—*Sanitarium.*

**LESIONS OF THE LATERAL SINUS RESULTING FROM INJURIES OF THE HEAD.**—Gangolphe and Piery (*Revue de Chirurgie*) report a case of injury to the head with laceration of the lateral sinus, together with seven other cases collected from the literature, and as a result of their study conclude that such lesions may be caused by a double mechanism—namely, by laceration under the influence of a splinter of bone or of a foreign body, and by rupture in consequence of separation of fragments of fractured bones. As a result hemorrhage takes place and a clot forms between the dura mater and the calvarium. The seat and the extent of the clot are dependent in part upon the adhesions of the dura mater and in part upon its detachment before the hemorrhage. Frequently there coexists with the extrava-

sation a preceding semifluid currant-jelly, intra-arachnoid effusion, covering the surface of the hemisphere opposite to the injured sinus. The symptomatology of lesions of the lateral sinus is most variable; it may at times be that of central compression and at other times that of an attack of apoplexy due to cerebral hemorrhage. Not only is the diagnosis of the sinus injured most often impossible, but often also the presence of an intracranial hemorrhagic effusion from injury of a vessel cannot be recognized, especially when the symptoms of apoplexy as from cerebral hemorrhage are present. In cases of difficult diagnosis, even when only a knowledge of an apoplectic seizure and of previous traumatism is obtainable, steps should be taken as if the existence of hemorrhagic intracranial extravasation of traumatic origin was assured. If a lesion of the lateral sinus is certain or can be presumed, one of two courses should be pursued. If the sinus is exposed, the wound is tamponed after careful removal of splinters or foreign bodies. If the sinus is not exposed, trephining should be undertaken at or near the point of traumatism, independently of the indications afforded by cerebral localization. These indications may even mislead and cause the application of the trephine at a point remote from the seat of hemorrhage. When the lesion is found the sinus is tamponed with iodoform and gauze.—*Med. Record.*

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# The Dental Digest.

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No. 3.

## Original Contributions.

### REPLANTATION OF THE NATURAL TEETH.

By F. T. MURLLESS, JR., D.D.S., WINDSOR LOOKS, CONN. READ BEFORE THE  
NORTHEASTERN DENTAL ASSOCIATION, AT HOLYOKE, OCT. 17-19, 1899.

Among the earliest bits of empirical knowledge in regard to the teeth, and doubtless reaching back to the older civilizations, is the fact that a tooth once removed from its socket could be thrust back into its place and after a time become reunited to the surrounding integument. This performance was uninfluenced by our latter-day acquaintance with dental anatomy or antisepsis, but out of it, by the application of modern dental science, has developed replantation and the kindred operations of transplantation and implantation.

A tooth may become the subject for replantation either through some external influence—as an accidental injury, or on account of a pathological condition or minor accident of the sort attributable more or less directly to the individuality of the tooth itself, as for instance, its position in the mouth or an unusual root formation.

I shall speak more especially of cases in which there have been indicated for some reason both extraction and replantation. Experience in the operations so involved is applicable to any case of replacement of the dental organ. In the treatment of a tooth dislodged by accident it is well, however, to remember that the lapse of a reasonable length of time during which the member has remained displaced is not a complication, and that the absolute removal of accumulations of a foreign nature is indicated, as well as antisepsis.

Extraction and replantation are indicated in (1) persistent alveolar abscess; or (2) abscess associated with pyorrhea alveolaris; (3) in teeth where a broach has passed through the apical foramen and refuses to be withdrawn, or a drill has been broken off in the pulp cavity; or (4) where the careless preparation of the pulp cavity for the pin of a crown has resulted in perforation of the cementum; (5)

sometimes in the case of a tooth the deformity of whose roots has been discovered to prohibit the attempted cleansing of the pulp cavity. Where it is for some reason desired to establish in dependable condition a tooth somewhat prone to resist ordinary operations for cleansing the pulp cavity; (6) as for instance, a third molar or first superior bicuspid upon which a bridge is to be placed this operation is a positive resource and may be determined upon without preliminary. I have it in mind that a tooth having exostosed roots, after amputation of the affected parts, can be returned to its socket and usefulness secured by this method.

The desirability of such procedure being established, an important further consideration is the condition of health and vitality of the patient, which cannot be overlooked as greatly influencing the success of replantation. An anemic condition, or any circumstance or constitutional disease which would be considered adverse to the performance of surgical operations in general, should have equal weight in the case of this operation. A positive contraindication would be furnished by the tooth itself, if through the long presence of dead pulp tissue the dentin should have become saturated with disorganized matter and death of the lacunar tissue have occurred.

Having considered carefully the desirability of continuing a tooth in place, and being satisfied of the capacity of the tooth to resume its accustomed usefulness by reason of its structural completeness and its relation to the articulation, begin by deciding how the tooth after being replaced shall best be supported in the alveolus during the period of granulation. Firmness is essential, and any effort necessary to secure it will be amply repaid in comfort to the patient and as a factor in the success of the operation. If an appliance be considered necessary in order to secure proper support, the impression for its construction should be taken before extraction.

In extracting the tooth great care should be observed to avoid accident of any sort either by checking the enamel or injuring the root or alveolus. It is self-evident that failure to extract a larger or smaller portion of the root will contraindicate replacement of the tooth, and that injury to the gum margin will be marked by a point at which the gum will contract and exposure of cementum follow.

Immediately after the tooth has been extracted and placed in bichlorid solution the alveolus should receive careful examination with the probe that the slightest disorganization or roughening of

bone tissue may be discovered and measures taken for removal of the affected portion. This can be accomplished with an engine bur or a scraper, the shape of which will be determined by the case in hand. At the earliest possible moment the alveolus must be packed with a wicking saturated with a not too thick solution of aristol and chloroform. The selection of this particular combination has been made because fibers of cotton seem less likely to become detached and remain behind to serve as an irritant after the withdrawal of the wicking.

If the time occupied with the examination of the alveolus and necessary curetting has been at all long, attention must be given before introduction of the wicking to the removal of coagula from the walls of the socket and securing as nearly as possible freedom from blood. The wicking should be packed tightly against the walls, great care being taken to avoid giving pain through pressure. The hemorrhage will be comparatively slight if this has been done with sufficient care, and further coagulation will take place in the wicking, so that when it is removed later on there will be nothing left behind. This is desirable because the replanted tooth will occupy the same space as before and the tiniest particle of coagulated blood present will be forced against the tissues and greatly increase the pain associated with the replantation.

To secure necessary dryness for the work upon the tooth, and at the same time maintain an aseptic condition (which seems unavoidably associated with moisture), is somewhat difficult. A napkin moistened with bichlorid affords a most insecure grip upon the tooth for so long a time as is required for pulp-cavity work and the placing of necessary gold fillings, and the constant slipping of the napkin upon the pericementum can but injure it. I feel that a strenuous effort at disinfection of the hands by way of preparation, and afterward keeping the fingers and tooth slightly moistened with the antiseptic, is rational and practical.

Preparation for the work upon the external and pulp cavities should be thoroughly made before taking the tooth in hand. The operations of filling pulp cavity and making necessary gold fillings in the tooth crown may be performed according to the accepted methods of the operator, except that in the pulp-cavity one of the cements is preferable, because when hardened it will allow the immediate contact of the gold in filling without yielding.



It is my practice to shorten the root apically. The degree to which this is done is determined somewhat by the length and form of the root, my idea being to cut behind diseased pericementum, to remove deformities, to save pain for the patient by leaving a slight space in the socket for the blood which will unavoidably drive ahead of the root when replaced, and also to give a place for the gold filling with which I always finish the apical end of the pulp cavity filling, preferring gold at this point because it is non-absorbent and unabsorbable. I cover the cut end of root to edge of pericementum with the filling, finishing with the burnisher, and in the same manner close with gold any perforation of the cementum which may have been made in the effort to cleanse the pulp cavity or prepare it for the reception of a crown-pin.

In the case of a root to which a crown is to be attached an injury to the cementum may be closed without obstructing the space necessary for the reception of the pin, by beveling the margin of the orifice so that the edge tapers both inwardly and outwardly, and then supporting a matrix from within the pulp cavity by use of an orange-wood wedge shaped for the occasion, and arching the space with gold. I have had such a root in place and carrying a crown and in healthy condition for the past six years.

Before replanting the tooth, approximal cavities disclosed in adjoining teeth by the extraction may be most conveniently filled.

When all is ready, and the tooth after having been handled has been placed in the bichlorid bath for a few minutes, the tooth should be taken in the fingers, the root form particularly noted and the exact movement of turn and thrust with which it will be returned to its socket decided upon. Having placed the tooth in the most convenient position to be seized without the slightest delay, the wicking should be quickly but gently removed from the alveolus and the tooth carried to place instantly, that there shall not be the slightest accumulation of blood in the alveolus. Thus a great deal of needless pain will be avoided and the replantation quite possibly prove painless.

The replanted tooth may be sustained by the splint of gold or gutta-percha previously prepared; or a ligature properly interlaced between the teeth of the region and supported by supplementary stays of silk thread passing over occlusal surfaces may be all that is necessary; or the approximal cavities being available, continuous

fillings of gutta-percha may be made reaching from one to the other, and prove most satisfactory.

All soreness of the part will pass away in a day or two, during which time the patient should be provided with proper antiseptic mouthwash, more especially to correct throughout the mouth the results of imperfect mastication. The case should be seen daily, so that ligatures may be kept intact and the part irrigated with an antiseptic solution. It is most unlikely that any occasion for the slightest further attention will arise, but if an inflammatory condition should present the tooth may be removed and examination of both tooth and socket made for the point of inflammation. Irrigation of the socket with a warm sterilizing solution will furnish necessary correction and the tooth may be returned to place. In ten or fifteen days the tooth will have assumed a normal condition which will justify its utilization if desired to carry a plate clasp or serve as a bridge pier. After repeated examination of such cases, running through a considerable period, I am unable to discover them to be in anything but the most satisfactory condition.

I would refer to a case of replantation performed by my father about twenty-five years ago. The tooth, a superior central incisor, is in no way distinguishable in color or condition from its mate, except for the filling on the palatal aspect of the tooth, which marks the opening to the pulp cavity. Recently the tooth had a labio-gingival cavity which required filling, and to the surprise of all concerned it proved as sensitive to the bur as any labial cavity when excavated in the cemental layer. We feel that this incident does not exactly fit into the more recent deductions in regard to the exact relations of alveolar tissue and the implanted or replanted tooth. This operation has with me proved a resource in many cases to which no other method of procedure seemed perfectly applicable.

Discussion. *Dr. D. A. Jones*, New Haven: Can this method of replantation be practiced successfully in cases of empyema? I do not think so.

*Dr. Murlless*: Fifteen years ago my father operated on a tooth which was very loose and a typical case of empyema, and it was distinctly tightened and saved for use, and for ten years it remained so. I have had such cases in my own practice, but not of so long standing.

*Dr. A. J. Flanagan*, Springfield: I would ask the doctor if any

living union takes place in these operations, and also how many of his cases have been successful.

*Dr. Murlless:* I said nothing about granulation taking place, but do not know enough about histology to make positive statements. In the cited case where the tooth was sensitive to bur I secured what seemed to be a live union and a healthy condition. As regards my percentage of failures, I have replanted over forty teeth and all but two of the operations were successful. In one the inflammation was so great that the periosteum was broken down generally, and now I should not undertake the case again. In the other the patient's mental condition and fear of cancer, the depleted physical state and the superabundant granulation which caused some trouble, induced me to extract the tooth, although I should to-day not do so. I have never had a case that showed absorption nor one in which there was not a healthy condition. I have seen absorption from an implanted tooth, but it was not my work. I know of one case of twenty-five years' standing.

*Dr. S. G. Stevens,* Boston: The first failure I have had in replanting was a case that stood twenty-two years, and then the tooth came out while the patient was fingering it.

*Dr. W. H. Rider,* Danbury: I think my antisepsis has been perfect and the physical and other conditions have been most favorable, yet I have lost twenty-five per cent of my replantations.

*Dr. A. J. Flanagan:* Two years ago a man came to me for extraction of a troublesome tooth, the right superior cuspid, and after extracting I noticed that one-half the root had been absorbed. The patient stated that twenty-seven years before he had three teeth knocked out and Dr. W. G. Breck, a surgeon, poured water on this cuspid and replaced it in the jaw. This was not done with the other two teeth because the alveolar ridge had been fractured.

I think if the operation is successful the reason must be found outside of a living union. No histologist will teach that you can revitalize a tooth after the vital membrane has been destroyed. Sometimes bullets remain in the body without irritation—they become encysted—while at other times they cause trouble. I think it is merely an anchylosis or granulation which gradually makes the tooth firm, and not living union. In the latter the teeth are in the vital membrane and nourishment comes from the system, while anchylosis is when a foreign substance remains in a mere opening.

*Dr. N. Morgan, Springfield:* Twenty-five years ago I saw Dr. Frank Waters of Boston show pictures of transplanted or replanted teeth. Some of them had been in position for years and there was great exostosis, showing that the cementum had taken on new life or else that new membrane had been formed. Dr. Waters scraped off all the pericemental membrane, believing that it must be absorbed before new membrane could be formed, so he helped nature out in this way and had good success with his cases.

I transplanted a tooth for a young man and when it was extracted the wall of the external alveolus was completely gone, so that by passing an instrument into the socket the gum could be lifted. Some days later in a regulating case I extracted a sound tooth from a fifteen-year old boy. I removed the entire pericemental membrane, and as the tooth was not for the proper side, ground off the corner. It was then inserted in the young man's mouth and for sixteen years gave good service. During the whole period there was a little trouble—not ulceration—with the external portion where the alveolus was missing. The tooth was finally absorbed, probably from the diseased conditions. The difference in cases is largely due to the condition of health, and the younger the patient the more favorable the prognosis. Whenever possible a young tooth should be transplanted regardless of the age of the patient receiving it. Its tissues are young and more amenable to healing.

*Dr. R. R. Andrews, Cambridge:* I believe new life may be formed in the cementum but no new pulp comes, and I doubt whether a living union ever takes place. A pulp once dead is dead forever, but where the periosteal tissue is destroyed the connective tissue from the alveolus will soon attach to it and the tissues then calcify. The tooth, however, is finally absorbed, and it never feels like other teeth, seeming to be a part of the jaw.

I once successfully replanted some teeth for a foot-ball player. The pulps were taken out and the chambers filled with gold. The teeth look well, and I believe there is an attachment of the cementum and that the teeth are alive. Where the periosteum is injured and dies or is taken out, the connective tissue of the jaw calcifies. In such cases there is sooner or later absorption of the tooth.

*Dr. D. A. Jones:* The pericemental membrane is alive and there is certainly union, but no calcification. The pulp being out does not make the tooth dead,

*Dr. W. H. Rider:* The most successful cases are where a tooth is immediately put back in place when it comes out, regardless of antiseptics, although I do not discredit them when practicable. In ninety-nine per cent of these cases, however, we should find if investigated that the pulp had calcified, yet the dentin of these teeth is very sensitive.

*Dr. F. E. Nims,* Leominster, Mass.: My experience agrees with Dr. Rider's. I know a farmer in the country whose boy had two teeth knocked out by a horse. The farmer wiped them off with his handkerchief, put them back in place, and they are doing service to-day. Some man has said that the cause of so many failures in transplanting is the condition of the operator's finger-nails.

*Dr. A. J. Flanagan:* When a tooth is extracted the pericementum is also, and with the pericementum you have taken away the circulatory system—that which nourishes and develops what Dr. Jones calls the living union. When we replace the tooth we have broken the circulation. Can we believe that those small arteries and veins which have been parted are again brought into exact position so that they form continuous channels, capable of revivifying the teeth?

*Dr. M. C. Smith,* Lynn: I have seen many cases of replantation, and the most successful are those where an accident has occurred and a physician puts the tooth back, never removing the pulp, and sometimes without much reference as to whether the right socket is found or not.

In extracting I always put one finger of the idle hand on one side of the forceps and the thumb on the other. With this precaution I seldom extract a tooth on either side of the right one, although I often loosen them. When this happens, or when a tooth comes out that should not, I immediately replace it without removing the pulp, and the case is a success. In transplantation I have had uniform failures, teeth being absorbed and dropping out in a few months.

*Dr. W. H. Rider:* The easiest made and most satisfactory splint is a thin gold one struck up to fit the two adjoining teeth. An impression is taken with modeling compound and fusible metal poured into it; a counter-die made and the splint struck up. In cementing it into place leave a portion to extend across the arch and press on the opposite teeth, so as not to give the three teeth in question all the work.

*Dr. D. A. Jones:* A patient had her teeth knocked out and the alveolus was badly broken. The splints had to be made quickly, so I ligated the teeth and made a cast, then fitted two pieces of gold wire on the sides of teeth—a crib arrangement—joined with 16-k solder, and in twenty minutes had a splint which was kept on those teeth for four months.

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## WHY?

BY G. W. SNYDER, D.D.S., BARABOO, WIS. READ BEFORE THE WISCONSIN STATE DENTAL SOCIETY, AT MADISON, JULY 18-20, 1899.

One of the queries which presents itself frequently is—Why do dental practitioners seemingly find it necessary to apologize, especially to members of the medical profession, for the title which we bear? So far as the title is concerned, of itself it amounts to nothing; but so far as the worthiness to bear the title is concerned, I do not understand why that of Dental Doctor is not as justly ours as that of Medical Doctor is to the man of medicine.

After we have spent years in hard study and toil, and hundreds of hard dollars preparing ourselves for the right to the degree, and after it has been duly conferred upon us by a reputable college, we certainly should not feel it necessary to apologize to the medical men, or to any other class of men, for bearing the title, as it is justly ours. Dental students are as faithfully taught as are medical students, and they enter into their studies with equal earnestness.

The dental profession arose, or rather developed, because of necessity. To specialize is the tendency of the times, and we can well designate dentistry as a special branch of the healing art, which has grown to be a most important one.

Dr. Ottolengui, in speaking of the manner in which our societies are conducted, says: "We should sit in councils as a body of scientists, not as a social body convened for pleasure." That is the one thing in my opinion which most militates against the usefulness of our association meetings. Further he says: "What we need is not admission to the meetings of the medical men, and a right to share in their councils, but rather such a proportion of medical knowledge as would make us less mechanical in our limitations and more able to diagnose and treat diseases which, appearing in the mouth and within our allotted sphere of action, nevertheless are really but expressions of constitutional disturbances elsewhere."

Discussion. *Dr. J. N. Crouse*, Chicago: To be a thoroughly successful dentist requires more ability than is necessary in any other profession, and when you come across a successful dentist you will find that he is considerable of a man. A sharp lawyer or physician can bluff his way through, but not so with the dentist. I really believe four-fifths of medical attendance is not needed except in the physician's or patient's mind, but in dentistry a condition confronts us and not a theory. I am never ashamed of being a dentist, nor need any man be who is living up to his possibilities.

*Dr. T. W. Brophy*, Chicago: In answer to complaints that the dental profession was not held in sufficiently high esteem the late Prof. Garretson once said: "What would the people think if Mr. Vanderbilt should go through the country engaging halls and lecturing to convince the community that he was a rich man. Everybody knows he is rich, and nearly everybody knows that the dental profession is performing a great work in the interests of mankind."

*Dr. W. H. Carson*, Milwaukee: If a dentist has ability he will be recognized no matter where he lives, and I do not take any stock in this whining "that the dental profession is not sufficiently recognized."

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## MALOCCLUSION.

BY C. S. BRADLEY, D.D.S., BELOIT. READ BEFORE THE WISCONSIN STATE DENTAL SOCIETY, AT MADISON, JULY 18-20, 1899.

It has seemed to me that in the haste to keep pace with all the new inventions little attention is being given by the majority of dentists to the study of the teeth in their individual relationship to each other and that of the dental arches. This relationship constitutes occlusion, and any deviation from nature's plan of harmony and effectiveness is malocclusion. Every observing dentist must be perfectly well aware of the great prevalence of the latter. A week's record would show a startling percentage of cases presenting malocclusion; and from the simple overlapping of an incisor to that involving the teeth of both arches and the resulting facial deformity, they will exceed the normal.

To correctly diagnose malocclusion is important and requires a knowledge of perfect occlusion that can be gained only by close study of the anatomy of the teeth, facial lines, consideration of the changes taking place at different periods of eruption of the decidu-

ous and permanent teeth, and the acting forces that so rapidly change the yielding tissues and control occlusion. It is essential that the dentist get as much insight as possible into the laws and effects of heredity, atavism, degeneracy and evolution.

Dr. Angle says, "All cases of malocclusion may be readily arranged in well-defined classes, just as plants, animals or the elements are; and by thoroughly mastering the distinguishing characteristics of occlusion and of the facial lines peculiar to each class the diagnosis of any given case is greatly simplified. At the same time, familiarity with the possibilities of tooth movement and the changes requisite to each distinct and separate class, to attain harmony in occlusion and in the facial lines, and a knowledge of the standard appliances designed for each established class as best suited to produce these changes, will reduce the difficulties of treatment to the minimum."

He classifies an individual tooth as subject to seven malpositions—"A tooth outside the line of occlusion may be said to be in buccal or labial occlusion; when inside this line, in lingual occlusion; or if farther forward mesially than normal, in mesial occlusion; if in the opposite direction, in distal occlusion; if turned on its axis, in torso occlusion. Teeth not sufficiently elevated in their sockets would be in infra occlusion, and those that occupy positions of too great elevation would be in supra occlusion. These different malpositions in their modifications and combinations form the basis for limitless variations of occlusion from the normal, from the simplest to the most complex, in which may be involved not only the malpositions of all the teeth, but even the relations of the jaws, resulting in marked deformities, and producing appearances even repulsive."

In considering the treatment we are departing from malocclusion to orthodontia, but it is a fascinating subject. One must devote his entire time and energy to this work to meet with a great measure of success, yet it is possible for anyone to do a considerable amount of good practical treatment in the cases that are so frequently met with. One dentist has said: "The best way to treat a case of irregularity is to send it to some other dentist." That is true only when the case is so complicated that one is not sure of his ground; it should then be sent to a specialist. Do not tell the patient that regulating work is impracticable or advise that the tooth be left



alone for nature to take care of. If a tooth is extracted to gain space, be absolutely sure that you are not injuring future possibilities of treatment. Many reasons have been given for the hesitancy of dentists to take up this work, such as, "I have not the time." "I cannot afford to do work which offers such small remuneration." "It is not a practical work—you break down the patient's nervous system by causing him months of torture, and then the teeth all go back again."

The first reason is valid only for dentists living in the largest cities, whose efforts are expended in other lines of professional work. The duty of such a practitioner is fulfilled by explaining to the patient the gravity of oral deformities, the necessity for immediate treatment, and referring the case to a specialist. The dentist living in a small place, however, has a great duty presented, and his advice and work are potent factors in teaching the public the value of teeth perfect in occlusion. With correct methods of treatment the time spent can be reduced to a minimum. The plea of insufficient remuneration is not logical. There are many patients who do not consider their teeth worth filling and who would naturally pay little attention to an irregularity. Such people need educating and it is our duty to instruct them. If we conscientiously do this, there will be many more parents who will cheerfully provide that their children need not be compelled to pass through life with facial deformities. Furthermore, if regulating appliances are studied and constructed with a correct view of the requirements presented, the time saved by the dentist will enable him to make the work as profitable as any other line. Discard rubber plates. Investigate the power and great adaptability of the forces contained in the jack-screw attached to fixed bands on the teeth. Become acquainted with the wonderful possibilities in utilizing reciprocal force, and the work will be found both fascinating and profitable.

Discussion. *Dr. T. W. Brophy*, Chicago: This subject has been sadly neglected. Many mouths show beautifully filled teeth but deplorable malocclusion. Unfortunately many dentists believe that they should do just what the patient asks and nothing more nor different. This is most unwise, as the dentist should be the judge in all such matters. Malocclusion may be corrected very easily if taken in time, and the old adage—a stitch in time saves nine—is peculiarly applicable here.

*Dr. R. Maercklein*, Milwaukee: Most acquired irregularities are produced by the injudicious extraction of teeth, especially the second deciduous and the first permanent molar.

*Dr. G. V. I. Brown*, Milwaukee: I recollect a case in which the difficulty with the peridental membrane, which showed itself in looseness and loss of the tooth, has been temporarily arrested by correcting the occlusion. There was another case in which four incisors were being moved considerably out of the arch by malocclusion. Ordinarily it would not be termed such, but it was brought about by reason of some nervous disturbance or some irritation of the brain which showed itself in the habit the patient had of bringing the teeth together in moments of unconsciousness, either sleep or subconsciousness, or when absorbed in thought. Many people are thus affected, and not only we as dentists recognize such conditions, but neurologists and general practitioners will pay more attention to them in the future.

### A PROFESSIONAL OPPORTUNITY.

BY *C. E. BENTLEY*, D.D.S., CHICAGO. READ BEFORE THE WISCONSIN STATE DENTAL SOCIETY, AT MADISON, JULY 18-20, 1899.

Only forty years back the good fellowship, the cordial exchange of ideas and methods, which mark such an event as this meeting, did not exist. Then each man's workroom was barred against his brother. Methods of practice were jealously guarded and small prejudices and selfishness arrested the development of a profession whose growth held unlimited possibilities. The organization of dental societies was the key to this locked door of individual isolation, and it has revolutionized the condition of the dental profession.

Bacon says: "The real use of all knowledge is that we should dedicate the reason which was given us by God for the use and advantage of man." These words are especially applicable to the professions. In proportion to the wider use of a profession—its general application—is it worthy of the esteem of mankind. The knowledge necessary to a fully qualified professional man is enhanced when it is applied to civic usefulness and needs. In short, a profession that contributes to the common weal, to philanthropy, stands higher in the public estimation for such service. Medicine has done much in this line that rightly entitles it to the high place it holds in the public's regard. Law and the clergy each manifest a keen

interest in the government of civic affairs and contribute their share to the well-being of society. These professions, having histories replete with many achievements; a literature illumined by centuries of research; and a zealous following of devotees who are keenly alive to the legacies of the past and eager for what the future may reveal, have won their places in the public's favor as much for their interest in the common weal as for their technical achievements.

We pity the soul so dwarfed and self-centered that it has no time or thought to give its fellow man. The loss is to the former, not the latter. As it is with men so it is with classes of men or nations. A class or nation has reached a high degree of organization and usefulness when it can throw off from itself like planets from a central sun, independent forms of organization created for the benefit of society; and this condition has been reached by many nations and a few professions.

What are we doing as a profession to meet the high estimate of our calling along these lines? What organized movements, having for their object the benefit of the civic health, sanitation, hygiene or enlightenment, have emanated from us? If the test for a profession's widespread usefulness is as above indicated, then how does our own measure up to the conception? Have we not ignored many opportunities, the fulfillment of which would have added much to the warrant for our claims upon the public esteem? In proportion as we engraft our professional selves upon the civic life, working from disinterested motives and contributing to the public weal, in just so far will we rise in the estimation of the people as regards professional worth.

The question then naturally arises, what can we do as a class to enhance the good name of our profession? As is well known, many stigmata that we attempt to correct or assuage in adult life might have been avoided had the patient known a remedy, or better, had he or she fallen into the hands of a competent advisor before the permanent sequellæ had fixed themselves. This is made possible only by our opportunity to see these conditions in their incipency. Dentists do not have such chance with the vast majority of children, and at the present rate of progress in this direction it will be many moons before such will obtain.

What machinery can we set in motion that will at once obviate the conditions referred to above and enhance our professional worth

in the public mind? It seems to me that our usefulness would be greatly increased if it were possible for competent dentists, recognized by school authorities, to be delegated to examine the mouths of children in the public schools and teach them regarding the hygiene of the oral cavity and also how to avoid the many pit-falls familiar to us all, which are often only the price of ignorance, or worse, of willful neglect. Such a plan is feasible, for already a similar movement has received the serious thought of men in other countries. In Berlin this system obtains, and the results are more than were looked for by its most sanguine promoters. In Toronto, Canada, no child can enter the public schools who does not present a certificate to the effect that its teeth have been examined by a dentist. California and St. Louis are wide awake on this subject and are slowly paving the way for its consummation. Chicago has gone at the work in a systematic way. The Odontographic Society has sent a circular letter to the boards of education in all civilized countries in cities of 100,000 and over, inquiring about their attitude concerning such a movement and gathering data upon the subject. The letter has stimulated the movement in nearly all places to which it has been sent, and I should not be surprised, when all the facts become known, if a general awakening as to its importance would be the result both with school authorities and the dental profession.

What are the possibilities of such a plan in full operation? Under proper regulations it would be of inestimable worth to the children. The impress upon the child's mind, while yet in its plastic state, of the importance of the care of the teeth would be lasting. Teaching of the best methods regarding oral hygiene and the multitude of useful facts pertaining thereto is valuable.

Again, the profession of dentistry would become one of the civic functions, and would receive some official recognition of its status of professional service as a factor of usefulness in maintaining the public health. The data collected from these examinations would be of untold worth to investigators. The profession would be brought closer to the community by reason of its connection with the school system. It possibly might result in a dentist's employment by the school authorities to especially teach his particular subject, instead of having it taught indifferently as now by the teachers of physiology.

These are some of its possibilities and benefits. This is simply a statement of the proposition. The details of such a plan would have to be elaborated by individuals most interested and according to the conditions where it would be introduced. It is sufficient to say here that considerable caution would of necessity have to be exercised in the selection of such men, and I think their appointment should come through the recommendation of dental societies. The abuse of any of its privileges could be dealt with as is the abuse of any privileges over which the school authorities have control.

With such conclusion I therefore make an appeal to you, as an organization, to consider this question seriously and organize that you may do some effective work along this line.

Discussion. *Dr. B. C. Campbell*, Lake Geneva: Every man who holds a degree owes a duty to the community in which he resides, and no one has a better opportunity to benefit mankind than the dentist. Let us begin with the children, whose minds are receptive. The opportunity presents in private practice, but more especially in the public schools. This agitation should properly emanate from the state society, as there can then be no suspicion of self-aggrandizement.

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## SOME OF THE PRINCIPAL CAUSES OF FAILURE IN REGULATING.

By S. H. GUILFORD, D.D.S., PHILADELPHIA. READ BEFORE THE NORTHEASTERN DENTAL ASSOCIATION, AT HOLYOKE, MASS., OCT. 17-19, 1899.

We may teach how to perform operations of any given character and thus impart valuable instruction, but it is quite as important to show where and how failures may occur; for we often learn more from them than from our successes. In speaking of failures I do not necessarily mean total ones, but rather failure to accomplish all that either the patient or operator hoped to accomplish. Absolute and mortifying failures seldom occur, because even moderately intelligent effort will usually leave the patient in a somewhat better condition than if no treatment had been attempted.

Many failures occur through lack of accurate knowledge of the parts to be operated upon, their anatomical character and physiological peculiarities. The teeth are regarded simply as objects whose positions it is desired to change; and force of some character

is applied in some manner, with the hope that if the force is great enough and is applied sufficiently long the desired result will be accomplished. The attendant and modifying conditions of age, health, sex and family type are overlooked, and the great mechanical and physiological feature—improvement of occlusion—is lost sight of. When a patient presents search is made through the different works on Orthodontia for a case similar to the one in hand, and the illustrated appliances are reproduced and applied with the feeling that success will surely follow. If disappointment should result a new search is made for another appliance, and hope is revived. It is the "hit or miss" method, and when by it satisfactory results are obtained, they are certainly due more to good luck than good management.

Again, failure may and often does occur through the employment of improper methods, or such as are not suited to the case. Differences of opinion may prevail as to what constitute proper and improper methods, but we think no one will dispute the statement that removable appliances have had their day and often defeat the objects of their employment. If such appliance be difficult to remove the patient may not remove it, or, once removed, may not be able to replace it. If easy to remove the chances are greatly in favor of its being removed too frequently and left off for too long periods. A stationary appliance which withal will not interfere with a satisfactory cleansing of the teeth, will be much more satisfactory to both patient and operator and far more likely to accomplish the results sought after.

Another form of appliance which I would class under the head of improper, or at least undesirable, is one in which ligatures are employed to any considerable extent. Ligatures, it is true, are sometimes necessary as accessories, but they should be employed only for minor or subordinate parts of the operation. The extensive use of them is open to several objections: they exert but little force; are tedious to apply; are very liable to become displaced, or to slip up and irritate the gum; they interfere with the cleansing of the teeth, and require long sittings for their adjustment and removal. In addition to these I might add, that in their use the patient cannot render any aid in the operation, as he could where screws are employed. The displacement of ligatures, when the patient resides at a distance, is a very distressing mishap; and when it occurs fre-

quently is most likely to discourage the patient and may result in the abandonment of the case. Instances of this character have occurred so frequently that those who make a specialty of regulating have abandoned the extensive use of ligatures and are employing in their stead appliances that are more stable and controllable. Again, all appliances which cause great pain, either by irritation of the soft tissues or too rapid movement of the teeth, should be avoided. Uncontrolled force, as exhibited in some forms of springs or elastic plates, is a very dangerous agent to employ and may result in positive harm—a thing more to be dreaded than simple failure.

Unwise extraction of teeth is often a precursor of failure. By it many unskilled operators have not only assured their own failure, but rendered almost impossible the success of their more skillful successors. Probably no one thing preliminary to the immediate work of regulating has a greater bearing upon the success or failure of the operation than extraction. Wisely done, after most careful consideration of all present or future possibilities, it may be the one thing that will contribute most largely to success; but unwisely performed or not being resorted to when it should have been, it may result in irremediable failure.

Where certain teeth erupt abnormally, or are crowded out of their proper positions and room is lacking for them in the arch, two methods are open for providing the required space. We can either extract one or more less important teeth or expand the arch. Sometimes one plan is best, sometimes the other; but to do either where the other is indicated will be followed by disastrous results.

Another fruitful cause of failure is insufficient or insecure anchorage. In applying force within the mouth we need a point of resistance or anchorage from which to exert the force which we intend to apply for removing irregular teeth into their proper positions. If this anchorage be insufficient it will be moved in response to the force which the appliance necessarily exerts equally in opposite directions. To prevent a disturbance of our anchorage we must make it as secure as possible by temporarily binding or joining several teeth for the purpose. In all cases the anchorage should be capable of resisting many times the amount of stress which it will be called upon to bear, for if the anchorage should prove unstable we not only invite failure but produce a condition which in itself will be most unfortunate. The most common cause of the disturbance

of the anchorage is the attempt to move too many teeth at one time. Where the anterior superior teeth protrude excessively and lateral expansion is contraindicated, it is common practice to extract a tooth on either side of the arch (usually the first bicuspid), so as to permit the six anterior teeth to be moved backward. All the teeth that can then be used as anchorage under the most favorable circumstances are the remaining bicuspid and two molars on either side. If now the attempt be made to retract the six anterior teeth at once, depending upon the six posterior ones to furnish the resistance, the result will often be that the anchor teeth move forward instead of the anterior ones backward.

Such a disaster may easily be avoided by dividing the burden of work and moving only part of the teeth at a time. If the cuspids are first forced backward as far as required and held there, all the available pressure can then be brought to bear upon the incisors and they will probably yield to it without any disturbance of the anchorage. When through any mishap the anchor teeth become loosened and move from their positions, the only recourse left is to obtain resistance from the dome of the head by means of the skull-cap and its accessories. In fact such great resistance can be obtained in this way that it is generally better to resort to it in the first instance.

Still another cause of failure is the inordinate lengthening out of operations in regulating. Too rapid movement of teeth is apt to be not only painful but may result in harm; but the slow dragging along of any operation often produces discouragement in the patient and tempts him to abandon the case altogether. The operation may be safely hastened in many cases by having two movements going on at the same time, either in the same jaw or in both, where they do not in any manner interfere with one another and where they are not likely to cause too much tenderness in the teeth.

Occasionally, two simple operations of opposite character may be made compensatory; that is, the same force which is exerted to move certain teeth in one direction is also made to serve in moving other teeth in an opposite one. In the exceptional cases where this principle can be applied it serves an admirable purpose.

But all failures do not occur as a result of the methods or appliances employed. The work may have been skillfully performed, all the desired results obtained, and failure still supervene. I allude, of course, to the failure to retain and permanently secure the



good results accomplished. Proper provision for securing the moved teeth in their new positions until nature has provided for their physiological retention, is quite as important as the act of regulating itself. Many a case has been carried to a successful termination so far as movement was concerned, which later proved an almost utter failure through improper or insufficient retention.

Two points in connection with retention need to be particularly emphasized. First, the appliance used for retaining should be of such a character as to hold the teeth almost immovably in their new positions; second, it should be kept in place until we are certain that the teeth will remain where they have been placed. For many years retaining appliances in the form of plates with certain appendages were almost exclusively employed, nothing better for the purpose having then been devised. They were removable, because they could not otherwise be kept clean, and the cleansing of them and the teeth was regarded as offsetting the disadvantage of having so much material in contact with tooth substance. Time, however, proved them to be unsatisfactory. Their removable character placed the wearing of them entirely under control of patient, whose conscience and sense of duty were as yet imperfectly developed. They were removed upon any special occasion and not replaced so soon as they should have been. As a result the teeth were alternately moved and held, so that nature was unable to build up the necessary bony support around them, and after a longer or shorter period the appliance was laid aside and the case regarded as a failure by the parents.

The dentists somehow failed to notice the similarity in process between the osseous union of a fractured bone and the formation of new bony material around a tooth, and lost sight of the fact that as absolute fixedness of the parts is essential to the successful union of a fracture, it must necessarily be quite as important a consideration in connection with tissue formation in the alveoli.

Fortunately new light has come to us. With the advent of the Magill band and its many adaptations we seldom have need of plates or other bulky appliances to serve as retainers, but in their stead employ one or more metallic bands cemented to the teeth, which while occupying too little space to interfere with speech or the proper cleansing of the dental organs, are immovably attached to the teeth and hold them so securely as to favor their becoming

fixed in the shortest possible time. They are to the loose teeth what a splint is to a fractured bone.

The length of time that a retainer should be worn will vary with the number of teeth moved and the bodily vigor of the patient. A less time than six months is never safe, and it may have to be extended to a year or even two years. If the operation has been a simple one, involving but a few teeth, a half year's time may be sufficient to allow for retention, but if great alveolar change has been brought about, as in retraction of all the anterior teeth in upper jaw, the retainer will need to be worn a very long time if we wish to guard against the loss of good results accomplished.

It is always a safe plan to have the retainer in position so long as we consider necessary, and then keep it there a few months longer for greater certainty, for the moved teeth exhibit a wonderful perversity in their attempt to struggle back to their old positions. With an appliance slight in character and not in the way of the tongue it is not difficult to persuade the patient to continue wearing it so long as we wish. Why it should be necessary to wait so long as we have to for the teeth to become fixed, when it requires but six weeks or two months for the firm union of a bone, is difficult to understand, but the fact remains and we have to be governed accordingly.

In conclusion I would say that when the time arrives for the removal of a retainer, it should be left off only a few days before trying it in place again, to see whether or not the teeth have moved. If the appliance goes readily to its old position it may be left off for a week or two and then for a month; and if at the end of that time the teeth show no disposition to return to their old positions, we can feel safe in dismissing the case and considering it a success.

If at any trials force is necessary to get the retainer into position, it should immediately be cemented in place and worn for a few months longer.

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TEMPORARY PARTIAL PLATE MADE IN A FEW MINUTES.—A patient having broken a partial plate carrying the incisors, and having an important engagement within an hour, the deficiency was supplied as follows: Molding a large piece of Gilbert's temporary stopping to the vacant space, suitable teeth were heated and pressed into place in the mouth. With powdered gum tragacanth sprinkled on the under surface of the piece it was worn with perfect comfort and security until the plate was repaired.—*Dr. John Girdwood, Cosmoa.*

## **Digests.**

**X-RAYS AND ARTIFICIAL TEETH.** By Henry Blandy, L.D.S., London. The *British Medical Journal* recounts the death of a woman in Paris from swallowing a portion of her artificial teeth. It states that the X-rays were of no use in locating the position of the plate, on which were two teeth. The editor of the *Record* says: "If the plate were made of vulcanite it would be transparent to the X-rays, and hence could not be localized." X-ray experiments are made at the General Hospital, and to test this statement was, of course, extremely easy. Upon a Landall's Röntgen 10 by 8 inch plate I arranged eleven old vulcanite plates, one of metal, one bit of india-rubber tube, and one elastic band. The red and pink vulcanite plates show as distinctly as the metal one; the black vulcanite less so; but in all cases the teeth are perfectly defined, with their platinum pins. The tube, and even the elastic ring surrounding the leather case, are also plainly visible. I then banded one of the plates on the throat of a boy—taking the negative right through the neck, from front to back. The plate of vulcanite appears there distinctly also. The thickness of neck or part is merely a question of length of exposure and development. I write this at once in order that the X-rays may not be discredited by the failure of the Parisian operator; or perhaps the next person who happens to swallow artificial teeth might be given over to cuts in the dark and exploratory incisions, from which X-rays now save many patients in cases of foreign bodies.—*Dental Record*, Feb. 1900.

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**GLOVES IN DENTAL SURGERY.** By L. D. S. In a recent article the author, in giving his experience of using gloves in aseptic operations, states that he tried those made of silk, taffeta, thread and cotton. In septic cases he uses a nonpermeable one of the rubber type. "Surgical operations from a glove-wearing point of view may be divided into the septic and aseptic classes. In the (1) aseptic cases one may state that gloves are worn to prevent the possible contamination of the field of operation by the hands of the operator, his assistants and nurses; (2) in septic cases to protect their hands from being contaminated by the field of operation."

In dentistry we have been in the habit for a long time of using

either the single rubber fingers, slipped over the fingers of the left hand specially—the fingers which have to handle the field of operation in extracting teeth. But the presentation recently of an unusually diseased condition of the roots of teeth and foul gums led us to adopt the common white kid glove on both hands. Dentists who care to keep their hands soft and clean may rub mutton tallow or vaselin well into the hands, nails and fingers, and sleep with them thus. This very much softens the kid, and nothing can be more cleanly or comfortable than to use kids treated in the same way, where one has to finger discharging abscesses in extractions. The sense of touch is not in the least impaired; the tallow or vaselin enables the operator to enjoy a more delicate manipulation than with rubber gloves, while the precautionary advantage to the operator is at once apparent.—*Dominion Journal, Feb. 1900.*

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**GOLD AND TIN IN COMBINATION.** Dr. S. B. Palmer, Syracuse, N. Y. In an article on the management of the permanent teeth in childhood, Dr. C. N. Johnson says: "As to the choice between gold and amalgam, this should be governed by two considerations—the one of expense and the one of an adequate endurance on the part of the patient to submit to gold operations without undue nervous strain."

I will briefly mention what was omitted in the paper which gave liberty to an underrating by opposing opinions. That is, the chemical combination of gold and tin in the mouth, long after the work has been done, seems not to be generally understood. Let us first quote Dr. Johnson: "A very useful material for filling these occlusal cavities where the area of the cavity is not too great, is a combination of gold foil and tin foil rolled together. This can be used when the gold operation would be too exhausting, and if properly manipulated it will prove a very satisfactory and often a very permanent operation. With an operator who is familiar with its manipulation it may be inserted so rapidly that it is seldom necessary to apply the rubber-dam, and this of itself is often an important item in the management of children's teeth. It is especially indicated in occlusal cavities of upper molars and bicuspsids, the lower molars ordinarily calling for fillings too great in area to make this material serviceable. It cannot be depended upon to wear well in cavities with a broad masticating surface."

For more than a score of years I have made a study of this combination, and my experience is much more favorable than the above claims indicate. The mention that the lower molars ordinarily call for fillings too great in area to make this material serviceable indicates that the chemical action which follows the combination of gold and tin was not considered. There are two phases to be considered in this combination, which are, first, when gold and tin foil are packed into a cavity with good walls and the operation is done as thoroughly as would be with gold, such fillings are perfectly fitting and tooth-preserving. Aside from the ease of manipulation, by which perfect adaptations are secured, they are not so durable as gold, because there is no cohesion and the plug is worn away by layers. Consequently fillings of large areas, as stated, are soon worn away. The other phase consists in forming an alloy of the two metals. By electrolytic action induced by the fluids of the mouth there is an interchange of atoms. By mutual induction the gold and tin unite, forming an alloy resembling amalgam in hardness and color and as durable. This principle does not depend upon the size or form of cavity other than to retain the plug while undergoing the change mentioned. Thus it will be seen that dryness is essential only in maintaining the plug during the chemical process which fixes it. The advantages in the use of this filling over any other (except where amalgam would be objectionable) are obvious. It is soft, by which with coarsely serrated pluggers sufficient mechanical adhesion may be obtained to do contour work. Being pliable, the filling may be brought in close contact with the walls of the cavity. As the hardening depends upon moisture the rubber-dam is not necessary.

The laws which govern the union of gold and tin seem not to be generally understood, which has led to many failures. As previously stated, gold and tin when in contact in the mouth become united, that is, the mere surfaces interchange atoms and a perfect joint or contact is made by an alloy of the two metals. This alloy does not extend into either metal beyond the thickness of one or two layers of foil. It is difficult to roll the foils so as to have the metals evenly distributed. The result is, where an excess of tin comes to the surface in a filling that portion becomes worn or dissolved out, leaving a pit. An excess of gold remains bright and does no harm except when the gold is folded upon itself noncohe-

sively. In that case there would be a weak point with no cohesion. This would do no harm in the body of the plug. This principle should be borne in mind when gold and tin are used for guard fillings at cervical borders under gold fillings. Amalgam serves a good purpose for such fillings, and gold and tin does equally well when the material is introduced in alternate layers, but two or more layers of tin foil used without the gold, except the one in contact with the gold, will be dissolved by galvanic action; that is, if the tin is not used cohesively. Any considerable portion of a filling may be done with tin and no such dissolving occurs. With only a few thicknesses failure may be expected.—*Indiana Journal, Jan. 1900.*

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**EXAMINATION OF TEETH OF LEPERS AT MUGURO LEPER HOSPITAL, NEAR TOKIO.** By Louis Ottofy, D.D.S., Yokohama, Japan. Following is the number of patients at the present time: Adult males, 20; adult females, 8; children, males, 4; total, 32. The cases are in all stages of advance, the oldest being of six years' standing. I had an opportunity to examine the teeth of eight of these unfortunates, the remainder being too far advanced to justify the risk of personal contact. In the first place I was surprised at the generally sound and hard structures of the teeth of these eight men who ranged in age between twenty-five and forty, notwithstanding the fact that the lack of hygienic care was apparent in every mouth. The small number of teeth lost by extraction was also a noticeable feature. Irregularity of the teeth, which from a mere observation, statistics being wanting, I am of the opinion is characteristic of the Japanese race, was noticeable in six out of the eight cases, and the presence of salivary calculus, which is usual when the teeth are not regular, was, of course, also in greater or lesser quantity present. The condition of the teeth was as follows:

Case 1.	Teeth sound	21;	carious,	7;	extracted,	1;	not erupted,	3
" 2	"	"	24	"	8	"	0	"
" 3	"	"	20	"	12	"	0	"
" 4	"	"	28	"	4	"	0	"
" 5	"	"	18	"	9	"	1	"
" 6	"	"	23	"	9	"	0	"
" 7	"	"	30	"	2	"	0	"
" 8	"	"	27	"	4	"	0	"

Summary: Total number of teeth which should be present, 256; sound teeth, 191. Carious teeth: Unfilled cavities, 53; filled cavities, 2; extracted teeth, 2; unerupted teeth, 8.

On examination of the table several facts will be noticed, especially the presence of so large a proportion of the third molars, on an average of only one in each case missing, and as a fact, there are only three men out of eight who have not erupted every tooth. I am of the opinion that no other civilized nation would show the same condition, and I am inclined to the belief that prognathism, which I believe also to be characteristic of the race, may have some bearing on this point, but inasmuch as no reliable data as yet exist, no definite statements are possible.—*Review, Dec. 1899.*

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TRISMUS AS THE RESULT OF ULCERATED TEETH, AND THE USE OF WEDGES. By Paul Voigt, D.D.S., Philadelphia. Trismus as the result of ulcerated teeth occurs very frequently, and the patient becoming alarmed at the disease because of the great distension which takes place around the jaw, accompanied by fever, pain and debility, calls in a physician instead of a dentist to treat the case. The doctor of medicine in eight cases out of ten orders a hot poultice to be applied to the cheek, and in twenty-four hours the patient, instead of being on the road to recovery, presents a pitiful appearance; eye almost closed, every muscle on the affected side of the face drawn out of place, and all the tissues distended as the result of engorgement of all the blood-vessels around the diseased part. The case goes on from one to several weeks, when a free incision is made with knife on the outside for evacuation of pus, an unsightly scar following operation; and then patient is sent to a dentist for extraction of the diseased member.

All this pain, debility, and disfigurement could have been avoided had the case been turned over to a reputable dentist in its first stages, or a dental surgeon called in consultation. When we decide that it is necessary for the patient to have an ulcerated tooth extracted, it should be done at once, even though the face is considerably swollen; an ice-bag or ice-cold water should be applied externally until the swelling is reduced, and with the use of any antiseptic mouth-wash a rapid recovery will usually follow; but where the disease has made considerable progress and trismus has set in, a slightly different treatment is required.

Miss C. Ulcerated lower third molar. The ulceration had been going on for a week; the patient had eaten nothing for several days, and slept very little; the mouth was nearly closed; breath fetid; had been unable to use a mouth-wash. I sharpened several pieces of wood into wedges, placed them between the teeth, and tapped them from time to time with a small mallet. After about half an hour the mouth had opened so that I was able to slip in a lance and cut freely around the abscess. The patient not allowing me to work further at this visit, I ordered a mouth-wash, an application of ice-bags, and made an appointment for the following day. The muscles had relaxed considerably when I saw my patient again, and I was able to wedge the mouth open to such an extent that I could extract the tooth. Continued the use of cold applications and mouth-wash, and recovery was a matter of a very few days.

Miss H. This case had been treated by a physician for three weeks, when during his absence I was called in consultation. Trismus had set in, the teeth being closed within a quarter of an inch; and so much pus had formed that the last physician had used an aspirator to give some relief the day before. The cause of the trouble was a broken-down lower third molar, which had erupted outside the arch. I advised immediate extraction of the tooth. In this case I used wedges which I shaped out of cork, pressing them between the teeth with my fingers, and changing from smaller to larger ones, until in an hour I had the mouth opened so that I could use my forceps fairly well. I found, however, that it was necessary to extract the second before I could extract the third molar. An ice-bag was ordered to be applied externally, mouth-washes used, and a rapid recovery followed. When the physician who had been treating the last case returned he was dumfounded to find that I had been able to extract the teeth; he had during his treatment made several attempts to reduce the distension by lancing the gums, and it was his intention to freely open the parts on the jaw the following day; so the patient, who was a young lady, was saved by the timely extraction through the process of wedging, from a very unsightly scar.—*Cosmos, Jan. 1900.*

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ADJUSTMENT OF THE RUBBER-DAM. By E. K. Wedelstaedt, St. Paul. Now we are dealing with a mesio-occlusal cavity in an upper first molar. The patient has not lost any teeth on that



side of his head. The tooth is ready to be operated on. Space between the molar and bicuspid has been previously obtained. Examination reveals that there will be some trouble in adjusting the rubber-dam, as the contact points between the bicuspids and the bicuspid and cuspid are large and a trifle irregular. As gold will be the filling material it will be necessary to remove the clamp during part of the process of finishing the filling. Before the rubber dam is obtained I will place on my bracket two pieces of Irish linen thread (No. 25) eighteen inches long. Besides these the clamp forceps, No. 51 rubber-dam clamp, some thread bands (No. 16 Faber), and a piece of pointed soap. In the middle of one of the pieces of thread I will securely tie a small ball of cotton. A piece of rubber-dam about six inches square will then be obtained. At a point about three inches from one side by an inch and a half from the top, I will punch one large hole. The punch will be withdrawn and the punch plate changed to the second largest hole in the punch, and that sized hole will be used for making the remaining openings in the dam. Three-sixteenths of an inch from the first hole punched I will put the next hole, and I will continue to punch holes until there are six in all, about three-sixteenths of an inch apart. The holes will then be soaped and the dam adjusted. The thread with the cotton attached will be placed around the molar. The cotton will be drawn part way into the disto-linguo-gingival space. It will not be forced in this space, but the thread is drawn taut, so that there may be little likelihood of the dam slipping past it. A clamp will then be placed on the molar. Then the bicuspid will have a ligature placed around it. For an anchorage of the dam, between the central incisors a short piece of thread band will be used, which will be left there until the operation is completed. Ligatures will not be placed around any teeth but the two mentioned and the saliva will not creep in. Some care, however, must be used, and a rubber band will be passed between each of the teeth from the central incisor to the second bicuspid. This will be done merely as a precautionary measure, to be certain that the dam is past the contact of the teeth. A piece of rubber band will not be left between each of these teeth, as it is not necessary. When the rubber-dam has been adjusted by this method the crowns of six teeth will be exposed to view. When the clamp has been placed on the molar the dam is held so far out of the way as not to prove an obstruction at any

phase of the operation. There will be abundance of light also, and it will not be interfered with, as is the case when the crowns of but two teeth are exposed. I have been using this method for the past ten or fifteen years, and I cannot speak too highly of the many advantages in its favor.

Tying the thread around a small ball of cotton, as has been suggested, may not be anything new. My use of it dates back a number of years, and it came about in this way: I had been in the habit of making a series of knots on the thread and trusting to them to hold the rubber-dam in place. I adjusted the rubber-dam to an upper molar where I did not wish to use a clamp, and found the knots on the thread were not large enough to prevent the dam from being forced from the tooth, so another ligature was taken and a ball of cotton attached thereto. This held the dam in position and no further trouble ensued.

I believe there are 90 per cent more ligatures used by dentists generally than are necessary. In the majority of cases where the rubber-dam is so adjusted that the crowns of three or four teeth are exposed, if, instead of tying ligatures around each tooth, a small ball of cotton or a piece of spunk is crowded into the interdental space, the ingress of moisture is prevented.—*Ohio Journal*.

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PHYSIOLOGICAL REASONS FOR SUPPOSING THAT DENTIN AND ENAMEL IN PULPLESS TEETH MAY BE NOURISHED. By Joseph Head, M.D., D.D.S., Philadelphia. Read before National Dental Association, August 1, 1899. The case is that of a young lady whose slightest systemic derangement was often followed by obstinate pulp-congestion. On March 30, 1897, she came to me with such congestion in the pulp of the left upper first permanent molar as made it necessary to remove the pulp. Bleeding and arsenical applications were uselessly tried; cataphoresis was found unavailing against such tissue, and finally cocain was injected and the pulp thoroughly removed up to the tip of each root by means of a nerve-broach. The canals were filled with oxychlorid of zinc June 6, three months and six days after the trouble began; but in the meantime the first and second upper bicuspids on the same side gave such trouble that their pulps had also to be removed. Thus by June 15 the pulps of the left upper first permanent molar and left upper first and second bicuspids had been re-

moved, and all the canals were filled with oxychlorid of zinc. The patient was then dismissed.

In the following December she returned with a congested pulp in the left lower third molar, and in the light of past experience the tooth was extracted. The relief was, however, but temporary, and on the following day she again returned, declaring that hot and cold water gave her unbearable pain! I examined all of the teeth containing living pulps, and as none responded to the tests I finally in desperation began to test all of the teeth, and with most startling results. For when a hot instrument was placed against the molar from which I had extracted the pulp six months previously the pain was intense. The pulpless first and second bicuspidals also responded, but to a less degree. On opening the first permanent molar I found that the oxychlorid of zinc filling had become liquefied, and that the entire dentin had taken on such inflammation that it could not be touched without causing the patient to turn pale. In the bicuspidals the oxychlorid of zinc was hard and normal.

In previous years I had noted cases where dentin was sensitive in spots after a pulp had been newly extracted, and I attributed this sensibility to possible prolongations of the protoplasmic material of the cementum, but in the case just quoted sensibility of the dentin was general, and the pain was quite as intense as if a live pulp had been distributing nerve-tissue and nourishment. All three teeth were reopened thoroughly, and daily applications of chlorid of zinc were made until the sensibility was brought under control, when they were again filled. Six months later the teeth were still sensitive to heat and cold, but up to the present time the sensibility has steadily diminished and the patient has finally had entire relief. One fact concerning this report should be especially emphasized. The pulp was removed from a molar May 22, 1897, and for over one year and a half the dentin remained sensitive and presumably alive. Thus by a sort of human vivisection we have conclusive proof that dentin has means of sensory communication and avenues of nourishment independent of the pulp.

Are these phenomena incapable of being satisfactorily explained by facts already well known? Let us see. The ultimate nutrition of all the cells in the body is performed by osmosis of the liquor sanguinis, which weeps through the thin walls of the capillaries. The tooth has two avenues of nourishment, the pulp and the

cementum. The pulp opens primarily into the dentinal tubules, but beyond the dentinal tubules the liquor sanguinis in nourishing the tooth substance must permeate by osmosis pure and simple. The cementum communicates with the intertubular spaces and dentinal tubules of the dentin by means of its lacunæ, and osmosis can take place through it to all parts of the tooth, just as osmosis from the pulp occurs; while the avenues in the cementum not being so large as those of the pulp, the process must be slower and less effective. Thus the apparent puzzle seems to be solved. There being but two means of blood-supply, namely, the pulp and the cementum, each using the process of osmosis for ultimate nourishment, it is clear that if the pulp be destroyed the cementum must undertake the work formerly performed by both; and that it does do this seems to be emphasized by the fact that the cementum tends to exostosis and thickening when the pulp is gone, as though making preparation for extra effort.

If it be said in refutation that nerve communication between the dentin and the cementum has never been found by the microscope, it may be answered that the microscope has probably not yet found the half of what it is destined to find, and that it is far easier to believe that the microscope has overlooked minute sensory plasma than to believe that sensory impulses between the dentin and gum are carried on by a system kindred to the Marconi system. And furthermore, since the dentin can be nourished by a process similar to osmosis, why cannot the enamel be nourished in a similar way? Why should not the phosphate of calcium or some kindred salt percolating through the tooth gradually modify the density of the enamel-rods or their sheaths? My daily excavations tell me unmistakably that the enamel of five years is less hard than the enamel of forty years; my daily observations make me feel that the enamel grows harder in course of years long after the enamel-organ has been destroyed. But whether this hardening is done, as I think, by a further calcification of the rod sheaths, or whether the hardening is due to a change entirely within the enamel molecule, just as the carbon of coal is the same as the carbon of the diamond, I do not presume to affirm.

I know only that since pulpless dentin has been observed to live and have sensation for over a year, such dentin must have nerve supply and nourishment independent of the pulp. And if nutrition.

is possible to the dentin by osmosis through the cementum lacunæ, it is equally possible to the enamel by the same means; and when we consider how frequently enamel is known to change its color from permeation by blood plasma charged with broken-down hemoglobin, not only the possibility but the probability of enamel nutrition by osmosis is forced upon our consideration.—*Cosmos, Oct. 1899.*

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**SUPERIOR PROTRUSION.** By J. F. Colyer, L.D.S. Eng. Read before the Odontological Society of Great Britain. Many practitioners never begin the treatment of this irregularity until after the second permanent molars have erupted, and that it was the better course was certainly instilled into me during my student days. I cannot, however, agree that the best results are obtained by this method.

In the first place eruption of the cuspids aggravates the protrusion by the pressure which they undoubtedly exert upon the incisors, if allowed to force themselves into position in a full arch. By early interference space is provided for these teeth, and the irregularity to be subsequently dealt with is therefore less pronounced. This point is evidenced in the first case shown, the models representing the mouth before and after eruption of the cuspids. The cuspids have forced the laterals inwards. The next case also demonstrates the action of the cuspids on the anterior teeth in erupting, for in forcing themselves into place they have considerably aggravated the irregularity of the central and lateral incisors.

Mechanical treatment is considerably reduced. If the first premolars are removed before the appearance of the cuspids, the latter teeth will erupt well back towards the second premolars; the pressure on the incisors is thus relieved, with the result that they spread and can easily be retracted. If after the cuspids have fairly erupted a plate is used to open the bite sufficiently to prevent the lower lip passing behind the upper incisors, the natural pressure of the upper lip will considerably reduce the prominence of the upper teeth. The plate must of course be made free from the palatal aspect of the incisors. On the other hand, if treatment is delayed until after the eruption of the cuspids, mechanical means must be employed to draw these teeth back, which at times is difficult; the alveoli too will have become more developed and the retraction of the incisors will therefore be more difficult.

It will thus be seen that by early interference a great diminution of mechanical treatment can be effected, and the extreme importance of this is evident when we consider all the troubles attendant upon the use of mechanical appliances in the mouth, one of the most important of which is the disorganization of the bite. In early treatment this condition does not arise. These, then, are the advantages of early interference. It need hardly be mentioned that it is a *sine qua non* that the first permanent molars must be saveable teeth.

The next models are from a patient aged 10 years, who had marked protrusion of the incisors. The first premolars were removed directly the cuspids showed indications of erupting. The case was then left entirely alone until the cuspids had fully erupted, when the incisors were then brought in. A glance at the next models shows the amount of protrusion which was overcome simply by extraction only. A third case treated on somewhat similar lines is also shown, only here a plate was inserted to hold back the second deciduous molars, and when it was seen that the tendency for these teeth to advance had been overcome, the plate was cut free from the palatal surface of the incisors, the bite being opened so as to prevent the lower lip passing behind the upper incisor teeth.

Another point is the treatment of that class of protrusion where the lower incisors press behind the cingula of the upper ones. In these cases the lower incisors are generally arranged in a fan-shaped manner. It appears to me that if we can obtain a correct knowledge of the cause of this arrangement we shall be better able to adopt a more correct and rational line of treatment. To what is this uprising of the lower incisors due? In the majority of cases it can be traced to crowding in the anterior part of the mandible. The cuspids normally lie in a plane slightly anterior to the lateral incisors, and even in the normal condition the fan-shaped arrangement is slightly marked. When there is lack of space the cuspids encroach still more upon the roots of the laterals and force them in an inward and fan-shaped manner. If, then, this fan-shaped arrangement and abnormal uprising of the lower incisors is the result of pressure due to crowding, surely the most rational way to relieve is by extraction. If this is done the incisors will fall down to their normal level, and still further the arch will be slightly reduced in size—in other words, the most difficult stage in the treat-

ment of these cases will be easily overcome. This method I have latterly adopted in treatment, and the results will come up to my expectations.

I do not for one minute contend that in all cases where the lower incisors impinge behind the upper ones the primary cause lies in a crowded arrangement of these teeth. In a certain section of cases the impingement of the lower incisors behind the cingula of the upper incisors is accompanied by a want of development of the molar region. In such cases the usual, or rather orthodox treatment is to attempt to raise the bite by inducing the molars to rise in their sockets, and then to carry out the retraction of the anterior teeth. Such treatment, although it sometimes yields at the time fair results, does not seem to be permanent, and my experience has tended to make me doubt if it can be considered at all reliable. In two cases I have under observation the bites were raised, the teeth retracted, and at the time satisfactory results were obtained, the lower incisors being freed from contact with the upper teeth. In both cases a relapse has taken place, due, so far as I can determine, to the molar teeth being again forced down into their sockets. It therefore seems possible that the treatment is at fault, inasmuch as it does not remove the real cause of trouble that I believe is the true explanation. We are too much inclined to place the cause with the molars themselves, forgetting all the while that the depth of the molar and premolar region is in direct relation to the ascending ramus. For our treatment therefore to be rational we must direct our measures to the ascending ramus, and the solution would be to increase the length of that portion of the mandible, which at any rate with our present knowledge is impossible. So long therefore as we have the real cause of the short molar region, so long must we be prepared for our cases to relapse. I think that a much more effective method of removing the obstruction of the lower incisors is to shorten them by grinding down from their cutting edges, a method of course by no means new. The points argued against such treatment are: (1) it renders the teeth liable to caries and to pulp trouble; (2) the incisors again rise up and impinge on the upper teeth.

With regard to the first point, the liability to predispose to caries is so remote that it may be disregarded, while the pulp trouble can be easily avoided by carrying out the operation by easy stages, and

applying appropriate drugs to the exposed dentinal surfaces. With regard to the second point, the fresh uprising is not likely to occur in cases where the lateral pressure of the cuspids has been removed.

There is just one other point, namely, the tendency for cases of superior protrusion, when treated, to relapse. I am inclined to think that, providing the action of such causes as the lower lip, the lower incisors and crowding of the upper cuspids and incisors is overcome, the case will not relapse if a retention plate be worn sufficiently long. The removal of the crowding of the roots as well as the crowns of the teeth is most important, but too frequently overlooked. If the crowding of roots and crowns can be overcome there need be but little fear of relapse occurring, but if the crowding of the crowns alone is overcome, the case will show a distinct tendency to relapse.

The cases shown illustrate this point. In one the crowding of the teeth was marked, the roots of the cuspids lying over the roots of the laterals; the right lateral was also placed in a plane posterior to the right central incisor. The lateral incisors were quite rightly removed, with the result that a good arch was obtained, and the crowding of both roots and crowns of anterior teeth really removed. This case has never shown the slightest tendency to relapse.

The other case was of a somewhat similar type, namely, the laterals were placed in a plane slightly posterior to the cuspid and central incisors. In this instance the first premolars were quite rightly removed and the teeth brought into a good line. The case, even after a lapse of eight years, shows a decided tendency to relapse, and the teeth are kept in their corrected positions only by the use of a retention plate at night. In this case the crowding of the roots of the cuspids and incisor teeth has not been really overcome by the removal of the premolars, although such a step was undoubtedly the correct one. In cases, then, where the crowding of incisors and cuspids cannot be really overcome a tendency to relapse must be anticipated.—*Brit. J. D. S., Dec. 1899.*

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INTERSTITIAL GINGIVITIS DUE TO AUTOINTOXICATION. By Eugene S. Talbot, M.D., D.D.S., Chicago. Every one will agree that successfully to treat a disease the cause should be removed. There are many able practitioners who do not believe in the constitutional nature of interstitial gingivitis. A majority of



the profession do not believe that constitutional treatment is necessary to successful issue. It is with a view of making this position more clear that the present paper is written. I propose to direct attention to the constitutional variety of the disease—interstitial gingivitis of the type due to autointoxication. Every dentist even in practice but a short time has noticed that alveolar processes and gums recede from the necks of the teeth through the entire dental arch, or perchance but one or two teeth are so involved at different localities in the mouth. The alveolar process is hard, and the gums as a rule are healthy, although there may be occasionally a low form of gingivitis and exceptionally a discharge of pus about the necks of the teeth. Despite the infrequency of the pus discharged, the condition has been styled "pyorrhea alveolaris." The patients in whom this condition may be observed are often seemingly healthy. The jaws are well developed, and the number of teeth normal, with broad and short crowns well set in the jaw of the type seemingly least prone to decay. The general appearance of the patient suggests robust health. This condition, while not confined to one sex, most frequently occurs in the male. It is not confined to any period of life, but may occur at any time after puberty.

In dealing with the etiology of this disease, the tissues involved and their physiology first require attention, since here is to be often found the explanation of predisposition to pathologic change. Three great factors require attention. In the first place, in the evolution of the face the jaws have received receding tendencies, antero-posteriorly and laterally. They are much smaller to-day than formerly, and are still decreasing in size. The crowns of the teeth are not so large and the spaces between the roots are gradually diminishing, hence less alveolar process is required. In the second place, it must be remembered that the existence of the alveolar process depends upon the existence of the teeth. When the teeth are lost the processes disappear by absorption. In the third place, senile absorption occurs just as in the bones of the body, but to more marked extent. In the mouth and jaws, therefore, transitory or adventitious structures occur, which are more predisposed to disease than permanent structures. This is why the alveolar process is more subject to changes produced by altered metabolism due to trophic derangement of nutrition than other structures. Hence osteomalacia, or senile absorption, occurs with more rapidity and disastrous-

ness in the alveolar process than in other bones of the body. In other words, a cause which would not influence bone absorption elsewhere would markedly affect the alveolar process.

This process, furthermore, being situated in a cavity which plays an excretory part in an exceedingly moderate degree under normal conditions, would be markedly affected by the strain and influences resultant on excessive strain on other excretory organs. Such a strain would occur from the old condition known as "blood impurity," and for which blood purifiers were taken in the spring ere the days when vegetable food and fresh meat were accessible to the general population. This condition, which was scientifically referred years ago to "rheums" or "humors" (whence the name rheumatism), is now known as autointoxication. This condition, while manifesting itself under different phases as the so-called gouty or uric acid states or rheumatism, is at the bottom, and so far as clinical phenomena and treatment are concerned is but one process. Under existing data the position taken by Rhein and others as to the different clinical aspects of autointoxication cannot be maintained. According to recent investigations by Albu, the autointoxications may be divided into the following classes: Autointoxications from the suppression or disturbance of the functions of an organ,—i. e., autointoxication of thyroid gland, pancreas, liver, suprarenal capsules, producing myxedema, diabetes, acute yellow atrophy, and Addison's disease; autointoxications which occur from anomalies in general metabolism without definite localization, such as rheumatism, gout and oxaluria; autointoxications which are caused by the retension of the physiologic products of metabolism in different organs, such as poisoning due to extensive destruction of the skin by burning, carbolic acid poisoning, uremia and eclampsia; autointoxication due to the overproduction of physiologic and pathologic products of the organism, such as ammonemia, acetonuria, diaceturia, diabetic coma, etc. The most frequent source of this intoxication is the gastro-intestinal tract.

Autointoxication, like all intoxication, comprehends, as W. A. Evans has said: (1) production of the intoxicant; (2) absorption thereof; (3) reaction thereto. These three are embraced when autointoxication is spoken of, which is poisoning of an organism with matter produced by itself. Assimilation or the making of tissue is the passing of the simple into the complex, stability into instability,

with the storing of energy. This instability is a necessity of life. Dissimilation, divided into two divisions, death and energy, the last being a modification of death, is the passing of the complex to the simple, the instable to the stable, with the liberation of energy.

In the building-up process the unused portions of the absorbed foods may produce autointoxication. In the breaking-down process the ash can produce autointoxication. So long as these two processes—tissue-building and tissue-waste—are normal, intoxication can ensue only from faulty action of the destroying organs, of which the liver is the chief, or of the eliminating organ, of which the kidney is a type. This constitutes the first group of those due to faulty elimination. It applies to food remnants and to tissue waste, both normal and pathologic.

The second group is due to errors in cell life. It occurs under three sub-types: (1) by some reason food elements are left unused; (2) the ash from food-burning is usually toxic or unusually difficult to absorb; (3) the secretion of the cells is toxic.

While it may be stated, in accordance with the principles just laid down, that, considered from the direct standpoint of the production in the body there can be no bacteriology of autointoxication, still it must be admitted that autointoxication produces culture mediums in the body which would not otherwise exist, which enhance the virulency of the microbe, and hence increase the toxicity of its ptomaine. Indirectly, therefore, autointoxication must be considered a factor in bacterial action. In dealing with the general question of autointoxication, it should be remembered that when proteids are placed under the action of gastric and pancreatic juice they are changed into a hemi and an anti-group. The anti-group is, as J. A. Wesener points out, broken down into antialbumose and a small quantity of antipeptone. This last is a stable body which does not yield to the digestive juices or even to dilute sulfuric and hydrochloric acids. It is absorbed by the small intestine, but does not replace any waste of the used-up proteids of the body. Antialbumose is changed to serum albumen, and is the one that furnishes the body with its proteid food. The albumose, when injected subcutaneously, causes death; the blood fails to coagulate by reason of the fact that the lime-salts are precipitated by this body. If for any reason the epithelium of the intestine fails to perform its func-

tions of changing this body into serum albumen, toxic symptoms will arise.

While uric acid is charged with being the chief factor in auto-intoxication, its importance has been overestimated. It is a thermometer of the extent of autointoxication rather than its chief factor. Recent investigations, as J. A. Wesener remarks, show that uric acid represents the metabolism of the nucleins of the body, and is in no way related to the albumens taken in as a food, for these last bodies of this group are very poisonous. The necrosis arises as follows: The leucocytes break down easily because the carbodioxid remains too long in the tissue spaces; the nucleinic acid liberated in this way attacks the connective tissue, etc., irritates it, and this forms a good basis for destruction of nucleins.

A factor in autointoxication is non-performance of the process of elimination by the various excretory organs. In the urine alone, as Bouchard has shown, there is present each day sufficient toxins in a normal individual to cause death if not excreted. This condition is notoriously increased after prolonged nervous explosions like those of epilepsy or hysteria. This was pointed out thirty years ago by Meynert, who showed that the status epilepticus, or condition of repeated convulsion, was due to the accumulation of a proteid or nitrogenous body in the system. This status epilepticus is preceded by a decreased amount of toxin in the urine and succeeded by an increased amount. The same is true as to the influence of non-elimination from the excretory organs (the bowels, lungs and oral cavity) as well as the non-exercise of its poison-destroying powers by the liver. The non-elimination factor, moreover, interferes with ordinary digestive functions, and hence increases its own extent. The other factor in autointoxication is the production of toxic products in such quantity as to prevent their destruction by organs like the liver and consequent elimination, since a product to be properly eliminated must be reduced to a chemical type. Among the factors which tend to produce both these elements of elimination is the power exercised over the processes of growth and repair by the nervous system. In part this influence is exerted through the control of blood allowance by the vasomotor nervous system, and in part by the direct control of the nervous system over tissue change, which is known as its trophic function. Both these influences are effected by mental and nerve strain.

As Bichat showed decades ago, sudden emotion may produce marked effects upon the secretion of bile and occasion jaundice. Cases are far from infrequent where emotions like jealousy may produce a mimicry of gall-stone colic in neuropathic individuals. Murchison, Christison and Thompson have traced attacks of biliary colic to jealousy. Other liver changes from sudden nervous disturbances, whether of a mental type or not, are not rare. As mental impressions are communicated to the central nervous system purely through mechanical changes in the nerves, such influence must be purely material in operation. As the brain exercises a checking influence on the operations of the liver it is obvious that these mental influences can produce two effects. First, the mental shock might increase the checking action of the central nervous system on the local ganglia of the liver. Second, the mental shock might destroy the checking action on the liver ganglia, and in consequence the liver ganglia go too fast, resulting in their exhaustion. Either of these two conditions would interfere with a poison-destroying action of the liver, and accumulation of waste product would be the result. What is true of the liver is true of the other organs. This is especially noticeable, as Tuke points out, in regard to the kidneys. The action of mental anxiety or suspense in causing a copious discharge of pale fluid is familiar enough to all, especially to the medical student about to present himself for examination, the amount being in a pretty direct ratio to his fear of being plucked. The frequency of micturition may, however, arise from nervous irritability of the bladder without increase or even with diminished secretion. Still the action of the skin is usually checked, the extremities are cold, and the kidneys have to pump off the extra amount of fluid retained in the circulation. There is not elimination of the substances usually separated from the blood, compared, at least, with the aqueous character of the whole secretion. The odor may be effected by the emotions in man as in animals. Prout is of the opinion that mental anxiety will not only produce non-elimination, but also change in the chemical character as indicated by the odor and otherwise. As Claude Bernard long ago showed, disturbances in the medulla produce a markedly pale excessive urine. These disturbances often arise from intellectual strain or emotional shock. The influence of emotional states on secreting processes, and thereby indirectly upon autointoxication states, is illustrated in the fact

long ago pointed out by Tuke, that pleasurable emotions increase the amount of gastric juice secreted, the opposite effects being produced by depressing passions. Beaumont found in a man with a fistulous opening in the stomach that anger or other severe emotions would cause its inner or mucous coat to become morbidly red, dry and irritable, occasioning at the same time a temporary fit of indigestion.

The influence of fear and anxiety on the bowels is as well marked as that upon the bladder and kidneys. Apart from muscular action, defecation may become urgent or occur involuntarily from various causes; the increased secretion from the intestinal canal, as from fear, and in some cases from the altered character of the secretion itself. While in this the influence of fear may be inconvenient in man, it assists escape in some animals, as the polecat.

The emotions powerfully excite, modify, or altogether suspend, as Tuke has shown, the organic functions. This influence is transmitted not only through the vasomotor nerves, but through nerves in close relation to nutrition and secretion. As when the excitement is of peripheral origin, a sensory or afferent nerve excites their function by reflex action, so that when emotion arises it may excite the central nuclei of such afferent nerve, and this stimulus be reflected upon the efferent nerve, or it may act directly through the latter. The pleasurable emotions tend to excite the processes of nutrition, hence the excitement of certain feelings may, if definitely directed, restore healthy action to an affected part. Violent emotions modify nutrition. Various forms of disease originating in perverted or defective nutrition may be caused primarily by emotional disturbance.

As respects secretion the emotions, by causing a larger amount of blood to be transmitted to a gland, increase sensibility and warmth, and stimulate its function or directly excite the process by their influence on nerves supplying the glands. Painful emotions may modify the quality (i. e., the relative proportion of the constituents) of the secretions. Emotions check secretions either by extreme acceleration of blood through a gland by unduly lessening its afflux or by direct influence upon the gland. Although, as a rule, the activity of those glands which bear special relation to an emotion is in a direct ratio to its force, the secretion is checked when the emotion is excessive.

The pleasurable emotions tend to act only in one direction, that of increased activity of the secretions. The painful emotions act both in stimulating and arresting secretion. Thus grief excites the lachrymal and rage the salivary glands. Excess of grief checks the lachrymal and fear the salivary glands, while anxiety suspends the gastric. Extreme fear induces perspiration; fear causing less vascularity and secretion, the secretion of milk is lessened by it. The temperature of the skin is lowered and its secretion checked, although cold sweats may occur. Salivary secretion is arrested, while intestinal secretion is often increased.

The main immediate causes of autointoxication, aside from the factor which sets them in action or predisposes, are, according to Pocheore, diminished alkalinity of the blood, due to acidity of the tissues from overexertion and other causes. Insufficient supply of oxygen, abnormal fermentation process in the intestines, poison from without by bacterial or other agencies, retention of metabolic processes, evidences of these conditions, may often be detected in the urine. The resisting power of the organism depends very largely upon the manner in which the internal or tissue respiration is carried on.

The four great sewers which eliminate the waste products of the body are the kidneys, the skin, the lungs and the bowels. Shut off one of these floodgates, and not only the others but even secretory organs must do the work of the one disabled. One of the greatest eliminators of effete matter is the skin. If from any cause the skin becomes diseased, or after or during eruptive fevers in children, trophic changes and autointoxication are very marked. Pits and grooves upon the teeth, loss of hair, and nail diseases are familiar to every practitioner. Fortunately, these diseases have little or no permanent effect upon the gums, because they are yet in the constructive stages. It is only after one has obtained his growth that autointoxication from the skin lesion, or, indeed, from any cause, makes a grave and marked impression upon the alveolar process. This is peculiarly noticeable in animals. When the other excretory organs are acting badly, the skin and mouth assume their functions. Under massage the skin of the self-poisoned patients has a fecal odor, even when the bowels and kidneys are acting apparently well.

Autointoxication due to imperfect elimination of effete matter from the lungs is a fruitful source of interstitial gingivitis. The

more marked forms are those of tuberculosis, in which there is great debility and in which there is greater waste than repair. Self-poison is continually going on and will continue until death. The chest capacity for the inhalation of pure air is almost *nil*, hence the blood is improperly oxygenated and it soon ceases to convey nutriment to the tissues. Eighty per cent of criminals who die of tuberculosis in prisons have undeveloped chest walls. The degeneracy, therefore, cuts quite a figure in the *rôle* of autointoxication. Degenerates with contracted chest walls are, however, more frequently found. Many undeveloped individuals in every walk of life have tuberculosis. People with undeveloped chest walls and chest capacity may not have tuberculosis and yet suffer from autointoxication. Those who have had pneumonia, and who are thus unable to oxygenate the blood, are subject to this disease.

Asthmatics and hay-fever patients suffer from autointoxication and alveolar absorption. When the skin is overstrained, as to excretion through kidney and bowel overstrain, the lungs are forced to take on increased work with imperfect oxygenation as a result. This is noticed in the odor of the breath in Bright's disease. In nerve-strain states, and in the conditions described by Albu, not only do the excretory organs suffer, but the secretions, like those of the salivary and other buccal glands, are so altered as to become irritants. These excretory conditions result not only upon autointoxication states, but are modified trophic nerve function alteration.

By trophic changes is meant such tissue alterations as occur in morbid conditions from disordered function of the centres controlling nutrition. There may be peripheral as well as central tissues involved. The well-known law of Wallerian degeneration of nerve-fibres is an illustration; the posterior spinal ganglion acting as a trophic centre for the fibres of the posterior root is in the cord itself. The trophic action may be therefore peripheral, though as a rule in extensive changes central (cerebral or spinal) origin should be looked for.

The more marked instances of trophic disturbances are the wasting of limbs in the spinal paralysis of children or adults, and the most striking are perhaps the cases of progressive muscular atrophy of the various types and the peculiar hemiatrophy or hypertrophy of the face and other parts. Besides atrophy or hypertrophy there are included under this head other changes in structure or growth,



such as the necrosis of some "bedsores," those of the hair or nails, etc. These often indicate a general systemic disturbance, but may be more or less local in their origin likewise. In the case of the bedsores the condition is a necrosis due to the mildest kind of traumatism, a simple pressure acting on tissues, the nutrition of which is in a thoroughly depraved condition, and which consequently break down under the slightest provocation. The direct cause is external, but the primary condition is a general one, starting from the great centres, controlling growth and repair of the system.

Trophic changes are not always destructive; they may be the reverse, as already indicated. A general tendency to take on fat may be considered in a wider sense of term to be a trophic affection, but the term is usually limited to the more or less atrophies or hypertrophies, the changes in structure, pigmentation, etc., which follow certain nervous conditions and are spoken of as being under the influence of a special class of nerves, the trophic nerves, which are supposed to govern nutrition. These are known physiologically rather than anatomically; they have not been isolated, and their independent existence is still somewhat in question.

A trophic change allied to that of interstitial gingivitis is the change which takes place in the skin at the finger-tips in the fall of the year. Through the hot weather the effete matter has been carried off through the perspiration, when cool weather returns the skin ceases to act, and the liver, kidneys and bowels must do the work of the skin. Autointoxication results. nutrition is cut off, and the skin of the fingers peels off, leaving the basement membrane layers exposed and tender. The exfoliation of the skin continues until the system has adjusted itself to the new order of things.

As I have elsewhere pointed out, the great neuroses, like locomotor ataxia and paretic dementia, afford instances of trophic disorders directly underlying this factor in interstitial gingivitis. This was lately brought anew to the profession by M. Raoul Beaudet. This malady, of an evolution more or less rapid, is essentially marked by the shaking and falling out of the teeth, by alveolar resorption and gingival ulceration, by the perforation and at times necrosis of the maxillary. M. Beaudet reports seven cases of perforation, three of which came under his personal knowledge. Since then M. Letulle has published a new case. Dr. Chagnon reports the following case: O. G. is 44 years of age. About ten years ago he contracted syphilis,

for which he was treated more or less regularly. Two years later he got married and had healthy children. He did not abuse himself by the use of alcoholic liquors. In June, 1895, he was admitted to St. Jean de Dieu Asylum, suffering from intense maniacal excitement. At the end of two months the excitement disappeared and the physical and psychical symptoms of parietic dementia, until then hidden by his state of excitement, commenced clearly to show themselves—embarrassment of speech, fibrillar twitchings of the tongue, ideas of greatness and wealth, and to crown all, a state of dementia. The disease followed its course without any remarkable incidents until near September, 1897. At this date my attention was called to the state of his dental system. On examination the two incisors, the cuspid, the premolars, and the first molar of the left upper maxillary were found to be very loose and had only to be picked out. All the teeth were absolutely sound. The ulceration following the loss of the teeth, and which affected the surface of the alveoli, did not heal. About the middle of September a sequestrum became detached. As you can see in this, the work of alveolar resorption is not yet much advanced. The palate roof, forming the anterior border of the maxillary sinus, also forms part of the sequestrum, and thus there was a large aperture of communication between the sinus and the buccal cavity. Two months later the ulceration was cicatrized.

*Present Condition.*—In the inferior jaw all the teeth are sound and there is none wanting. The two premolars and the right cuspid of the upper jaw are decayed, the second and third left molars, as well as the first right molar are loose, but perfectly sound. There exists no alveolar pyorrhea, neither does any trace of ulceration appear, except a small opening which would not admit the probe. It was impossible to inquire into his sensibility owing to the profound state of dementia, which rendered him incapable of understanding the questions put to him. His physical condition is yet good; he is troubled only with weakness of the limbs. The rapid evolution of the affection is noticeable: less than two months after the falling out of the teeth the sequestrum became detached. This would explain the rather slow degree of alveolar resorption. The disease continues its course, since the second and third left molars and the first right molar are loose. Many cases of this type could be cited, but this clearly represents the clinical phenomena.

It will be observed in a general way that disease of any great eliminator of effete matter from the body, the lungs, skin, kidneys and bowels, or any disease of the body which may interfere with the function of waste and repair, will produce autointoxication. Auto-intoxication produces irritation, inflammation and absorption of the alveolar process. The constitutional variety of interstitial gingivitis is a definite result of trophic and metabolic change in the system. These changes, if not corrected, lead to severe results. These gum disturbances frequently prophesy the future course of autointoxication of which they are the initial symptom.

Many illustrations could be produced to demonstrate interstitial gingivitis due to autointoxication, from casts in my possession representing all diseases, but here is a more forcible illustration than any that could be produced. It is a skull of a monkey, about one-year old. He died of tuberculosis. All the temporary teeth except the left central incisor are in place. Absorption of the alveolar process has taken place to such an extent that the central incisor has dropped out. The inferior and superior left cuspids are ready to drop out, and all the other teeth could be removed with the fingers.—*International, Feb. 1900.*

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**ASBESTOS AS AN INVESTMENT.** By N. H. Keyser, D.D.S., Germantown, Pa. Read before Penna. Assn. of Dental Surgeons, Nov. 1899. For some time past asbestos has been used, alone or in connection with other ingredients, as an investment, either as a protection to porcelain teeth or to hold work in position during soldering. Both the asbestos powder and the so-called woolly asbestos have been used with plaster of paris to reduce shrinkage; the woolly with the idea that its fibres would assist in holding the plaster together when it shrinks and cracks on exposure to intense heat. The powdered asbestos is added to the plaster in place of sand, to produce a light porous investment. The most serious objection to its use is that it retains the moisture long after the plaster has set sufficiently to handle and expose to the heat. Investments that contain plaster are better without asbestos.

When time is no object very good investments can be made by adding to the plaster such materials as bar-sand, silex, marbledust, or pumice-stone. To prevent shrinkage the proportion of all these ingredients should be greater than the plaster. The best results are

obtained with materials that control shrinkage, make the investment porous, and yet permit the use of sufficient plaster to hold the investment together after it is heated. Investments that will set quickly without shrinkage have been sought for. Several are now on the market which permit of being heated up before the moisture is entirely dried out. A mixture having almost the same properties can be made by the following formula: Potters' clay, 4 parts; plaster, 3 parts; mica, 1 part.

An investment which stands a high heat without change of form has been suggested by R. L. Zellers: Pulv. soapstone, 1 part; plumbago, 3 parts; asbestos, grade 3, 5 parts; plaster of paris, 7 parts. Mix thoroughly and sieve.

Asbestos by itself makes an excellent investment. That known as woolly asbestos or the powdered, when mixed with water or alcohol may be quickly molded as required and the heat can be at once applied. It holds its form thus used, hardening as heat is applied, and with little care replaces fully in many operations the plaster investment, with the advantage of cleanliness and saving of time.

In using this investment it is best to first apply the heat slowly, so as not to disarrange the mass by the too rapid expansion of the contained moisture. Small pieces, such as a tooth upon which we desire to solder a backing, and many of the parts of a crown and bridge denture, may be expeditiously invested by binding around them No. 1 carded asbestos with No. 6 iron wire. The iron wire may be so arranged as to form a handle by which to hold the work. In this way a tooth can be safely soldered over a Bunsen burner or a spirit lamp without the necessity of waiting for the investment to harden or for any previous heating up. If there is not sufficient heat to melt the solder when held in the Bunsen burner, a blow-pipe can be used after the object is thoroughly heated.

In all plate work the teeth thus invested can be individually soldered and finished before final investment. The investment for holding the teeth to the plate is best made of plaster of paris and good sharp sand. Wildman's formula is: Sand, five parts; plaster, four parts.

By following out the method above suggested all the pins can be soldered, and the backings smoothed and finished conveniently and thoroughly and the final soldering to the plate be very much simplified. The plan also facilitates finishing and gives the plate a far

more perfect appearance with less labor than by any other method. By this simple investment gold fillings are easily fused in artificial teeth, all the work being done in the open flame of a Bunsen burner, quite as well as with the more expensive furnaces.

The tooth after the cavity has been prepared is wrapped with the carded asbestos, bound with the iron wire to hold it in place and to form a handle, care being taken to make the investment as thin as possible and to cover up all the tooth except the concavity made to receive the filling. The fibres of asbestos form an air space around the porcelain, protecting it from sudden changes of temperature and from direct contact with the flame. Any of the low fusing enamels can be used, Downie's, Timme's or ground plate glass. The enamel is mixed with water to form a thin, creamy paste, applied to the cavity in the porcelain tooth, and sponge gold is then gently pressed into it. The tooth is then held over the Bunsen burner, heating gradually at first, and is then placed into the hottest part of the flame. If this does not give sufficient heat to fuse the enamel the blow-pipe may be used to concentrate it upon the filling. After a little practice we can readily determine when the enamel is fused. It generally requires a degree of heat just a little less than the melting point of gold. After fusion the gold is condensed and the filling finished in the usual manner.—*Dental Brief*, Feb. 1900.

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**TURPENTINE.** R. H. Clark, D.D.S., Northampton, Mass. Read before the Massachusetts Dental Society, June, 1899. I do not claim for turpentine that in inflammation it is the most valuable agent, but say it stands without a peer in alleviating certain conditions to be described hereafter. Turpentine is of strong, diffusive odor, hot, pungent taste, non-corrosive, antiseptic, germicidal, preservative, an antiferment and disinfectant, and is practically non-poisonous, because adults have been known to take from four to six ounces without loss of life. Howbeit, overdoses taken internally produce nausea and thirst, a febrile state is induced, muscular strength reduced, coordination impaired, strangury develops, and finally profound insensibility and abolition of all reflex movements ensue. It is obtained from a species of pine, and by distillation the oil is produced. It readily absorbs oxygen, which it retains with great tenacity, hence enhancing its value as a remedy. Its action when applied to skin or mucous surfaces is counterirritant, rubefa-

cient and anodyne. Its physiological action produces heat and redness, followed by vesicular eruption and sometimes ulcerations. The heart's action is increased, arterial tension arises, a general sense of warmth and exhilaration of parts is experienced. It stimulates the vasomotor nervous system, exhausts the irritability of sympathetic ganglia, and stimulates respiration.

As an antiseptic, medical experts are satisfied that it is a product which produces a beneficial physiological action, and many thorough and painstaking investigators, in hospital and private practice, have established its claim to a very prominent place in the field of antiseptics, because in surgical dressings a thorough antiseptics of the wound's discharge is effected.

It is also given internally to combat many distressing and serious diseases, as cholera, disease of lungs, etc. In germicidal properties it ranks second to bichlorid of mercury, and is preferable because of its harmless nature. It prevents fermentation, and in the arts is invaluable on account of its great preserving properties. In dental therapy we find use in the following pathological condition: It counteracts the after-pain of tooth extraction. It is valuable as a root-canal dressing, the penetrating properties of the oil being carried throughout the canals of roots, even to the apices, thoroughly antisepticizing and rendering finally by its irritating nature the incipient abscess (if present) as nil. In periostitic troubles it is no doubt without a parallel, for by its counter-irritating properties that acute inflamed condition becomes quieted. In cases like the above its action is peculiar, according to vitality of the patient. Sometimes it acts as a resolvent, again it hastens (or seems to) ulceration.

In leucoplakia, in scurvy, or those turbulent conditions evolving hypertrophy of the gums, it acts quickly, quietly and likewise very effectively.

In mercurial stomatitis it has no superior. Let me emphasize its use to this pathological condition. In at least half a dozen cases in my practice it has never failed as yet to perform that for which it is intended. In operations for necrosis it acts to relieve that condition of intense pain.

It is an antidote for phosphorus, preventing the formation of phosphoric acid, and converts the substance into an insoluble, spermaceti-like substance. Thus it is indicated in the phosphoric necrotic condition in mouths of those working in match factories. In

all cases it tends to arrest hemorrhagic exudations, fermentation and putrefaction processes, with little pain attending its application.

As a counter-irritant we use it thus: To one part turpentine add one part aconite and two parts iodine. Apply directly to afflicted parts by means of a cotton swab saturated with it. In hypertrophic conditions, remove all irritated surfaces; apply oil of turpentine in such strength as is practicable.—*International, Dec. 1899.*

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**ALVEOLOTOMY FOR MISPLACED TEETH.** By W. H. Dolamore, Eng. Briefly the operation consists in dividing the alveolus on either side of each tooth which is to be moved, in bending the alveoli so freed with the teeth into the required positions, and in fixing the teeth in their new positions till such time as the divided bone shall have reunited.

First let us consider the union of the bone. This is a very important matter, for if bony union does not and cannot occur, then this operation should be condemned without reservation. But I firmly believe that bony union does follow. Why should the bony structure of the maxillæ form an exception to all other bony structure? That some fractures of the maxillæ do not unite by bone may be granted, but causes preventing union are frequently present, such as movement, interposition of foreign substances, such as the adjacent mucous membranes; and the wound may have and often does become septic. Yet so vascular is this bone, so able to resist septic processes, that I cannot well believe even this to be of frequent occurrence. But when there are clean cut, contiguous surfaces, absolute fixity and asepsis, bony union should and does follow with scarce an exception. Finally, is not the filling up by bone of every tooth socket after removal of the tooth a daily object-lesson of the power of the bone to repair itself when injured?

To insure union the mouth should be aseptic, tartar and septic roots removed, carious teeth filled, and the wound kept aseptic. Yet as Butlin has remarked, "the mouth is a capital sick-chamber." It is only in the mouth that aseptic precautions can be neglected with any hope of escaping an avenging Nemesis. With ordinary precautions septic trouble need not be feared after this operation.

*Secondly*, the teeth should be absolutely fixed in their new position. I have passed through a varied experience in this matter. In one case the adjoining teeth firmly held the moved tooth in its

new position and I used no splint. In one I used a Hammond splint, in another a wire ligature. For several I used a retaining plate on ordinary lines. One, in which I failed to move the tooth, and one, because the patient would not wear his plate, went without support of any kind. And all, so far as the divided alveolus was concerned, went well. Suffice it now to state that none of these means give absolute fixity of the teeth and bony fragments; and for the last three years I have without exception used a metal splint, struck up over the teeth and fixed in place with cement. The splint is an improvement on the old form of metal splint lined with gutta-percha, which was used for fractured jaws in the prevulcanite days.

Six weeks is about the average period I leave the splint on, but in children a shorter period will suffice. In some one may decide to leave it a further period, or even again to refix it after removal.

The alveolus should be divided through the cancellous structure, which forms the inner portion of the dental septa, as far as the apex of the tooth. A glance at a vertical section through the jaw shows that there is little chance of infringing on the root. This we can prevent at the beginning of the cut, and as the septa widen the more deeply we cut, the less likely it is to happen. In my earlier cases I used a thin circular saw in the engine, but found it impossible to reach deeply enough with the saws of the size usually sold, and when I had some larger made the friction of the saws was so great as to render their use in the engine impossible. The power needed is greater than the foot can conveniently give, bearing in mind that the hand must be steadily held; this is especially so in a cord engine, while in one with a flexible arm the spring buckles up at the least resistance.

I therefore had a couple of saws made which are still my favorites. They are really a modification of Hey's saw, the circular blade being omitted; they are also thinner. In some cases, however, though there may be plenty of room between the necks of the tooth, the cutting edges are in contact or even overlap. For these I use a modified fret saw, which can be threaded between the necks of the teeth and readily fastened and tightened up. In such cases I now gain previous to operation a little space between the teeth by separating with elastic. In a few cases I have also completed the division of the bone with cutting-forceps, but this is better avoided when practicable.



The most difficult part of the operation is undoubtedly the bending of bone and tooth into line. Stress must be laid on the necessity of first making room for the tooth to be bent in or out. For bending out nothing I have yet met with equals Bryan's forceps. For bending in I have so far used large, ordinary straight forceps, and for side movement Physics or similar forceps, the blades of which act approximately as a double wedge. This desideratum, however, is an instrument which shall be worked by a screw, so that the movement shall not exceed that required, and which shall hold the tooth in place while the fixing splint is placed in position.

The first patient I saw at the Dental Hospital in January, 1895. She was 19 years of age. Another member of the staff had regarded her as too old for successful treatment. This represents the average opinion held in reference to such cases, not because the teeth could not be brought into position at this age, but because the patient commonly tires of treatment and ceases to attend.

As this was to be my first attempt at this operation I determined to simplify it so far as possible. To remedy the crowding of the lower front teeth the right central incisor was extracted; this also removed a prominent tooth, which otherwise would have been in the way when the upper misplacement was corrected. Nature, as you see, soon closed up the slight space left. To gain room in the upper jaw the two premolars were removed. Removal of the first premolars would have simplified the case; on the other hand, a space might have been left after treatment which in this position would have been a great disfigurement. The first premolars, then the cuspids, and finally the laterals were drawn back into place by means of a plate which consists of metal caps, struck up over the molar teeth, to which are soldered half-round wires, which pass forward on either side of the tooth to be moved. The points of these wires are bent in and rest on the anterior surface of the tooth. As the tooth moves so the wires are bent. This plate was inserted on February 4, 1895, and the patient attended once a week till July, when the condition shown in the second model had been gained. It may be asked: If so good a result were gained by this plate why not have completed the case in a similar manner? I answer: I find it more easy to draw teeth sideways than directly inward, for even when drawn inward it is difficult to keep them there; indeed, unless a plate be worn for many months the teeth will move forward again.

On July 30, ether having been administered, I made three cuts with a circular saw, and with ordinary straight forceps brought the teeth into line. While so moving them I received my first lesson in the difficulties of the operation; both teeth came out of their sockets to the extent of an eighth of an inch. They were, however, replaced and held in their new position by means of a plate having a wire passing round their anterior surfaces. They soon became fixed in their new position, but a slight discoloration soon showed the pulps to be dead. They were therefore drilled into and the roots filled. This patient will attend to-night for you to see the result. The teeth are absolutely firm and the discoloration still so slight as not to be apparent, and as nothing compared with the previous deformity. I claim for this case that it is a success, but I learned that means must be taken to prevent teeth leaving their sockets. In all my subsequent cases I have prevented this by placing a pad of india-rubber, or of black impression gutta-percha, between the blades of the forceps, and since neither have teeth jumped out, nor in any other case have the pulps died. Dr. Bryan tells me he uses a pad of soft vulcanized rubber.

The next two cases were instructive to me. The first was a waiter in an hotel, aged 21, who had two outstanding cuspids. I brought them into line, operating in the same way as in the preceding case, with good result and a plate was inserted to retain the teeth in position. The following week, however, he attended without his plate, stating that the hotel proprietor had told him either to remove the plate or leave the hotel. The poor fellow had no option but to remove the plate. I am glad to say that the teeth were as firm as could be expected, though they had moved back to somewhat their old position.

The other was a girl of 18, for whom I unsuccessfully tried to move out an upper lateral incisor. From this I learned that ordinary forceps are poor things for this purpose, also that it is essential for ample room to be gained before attempting to move out teeth. The extent to which the gum was indented and contused after the operation made me astonished at the rapidity with which it healed up. After a few weeks we pressed this tooth into line by means of a regulation plate.

In the mouth of a girl aged 20, who attended at the Dental Hospital, I determined for various reasons to extract the cuspids. This

was done, and at a subsequent visit five saw cuts were made, the laterals were forced backwards with cutting forceps, and also brought inwards, as were the centrals, and a retention plate was inserted. This plate was made by a student and was a triumph of mechanical bungling. It would have been wiser to postpone the operation, but I thought it might serve, and to put off a patient who has gone all day without food in view of taking ether, is to run the risk of not seeing her again.

A few days later I saw the patient and found her right central very loose and a considerable quantity of pus coming down the socket. It was obvious that the only hope of saving the tooth lay in fixing it absolutely in one position. I therefore made a metal splint and fixed it on the teeth with cement. The socket was treated with  $\text{CaSO}_4$ . The case rapidly improved. A year afterward the teeth were quite firm in their new positions and healthy.

I learned from these first few cases the need (1) of providing against the teeth jumping out; (2) the need of a fixed splint. An ordinary retention plate is often of use in forcing the tooth into position, but it does not give absolute fixidity, it lodges food, etc., has to be removed for cleansing and each removal means jogging the tooth. It is not cleanly and hence against proper asepsis, while the fact that it can be removed places a power in the hands of patients they are better without. (3) Although small circular saws cut well they do not reach far enough for most cases; larger ones are impossible, hence the adoption of hand saws.—*Brit. J. D. S., Feb. 1900.*

\* \* \*

ETIOLOGY OF DENTAL CARIES. By J. Sim. Wallace, M.D., B.Sc., L.D.S. Eng. Hitherto I have taken it for granted that irregularity of the teeth predisposes to caries; I wish now to show *why* it is a predisposing condition. In order to elucidate this point I shall recall to the reader a condition which he may have observed, or if not, which he may easily observe on directing his attention to the subject. When caries starts at the neck of a tooth it will be noticed that it commences at a slight distance from the edge of the gum. The part which exhibits in the early stages the maximum amount of decalcification is removed from the edge of the gum about half a millimetre. Now if the crevice formed by the edge of the gum and the neighboring part of the tooth be filled with food, as it frequently is, it will be observed that the greatest depth of food is

immediately under the gum and not half a millimetre from it. From this it is presumable that the gum exercises an influence antagonistic to the formation of acid. This is further supported by the fact that at almost the same place in certain mouths there is a deposit of tartar. However, the tartar is deposited close to the gum, and in fact, if the formation is not great, at the distance of half a millimetre from the gum there is no deposit of tartar at all. This may be easily seen at the neck of the cuspids, when either of these conditions may be found with almost equal frequency.

The observation of these facts led me to doubt the truth of the current statement that the secretion of the gum was slightly acid. I therefore tested the reaction of the secretion and at first it appeared correct, but on further testing I found that the reaction varied at different parts—that, in fact, round the necks of the teeth the reaction of the secretion after cleansing the mouth was distinctly *alkaline*. This may be verified by molding a piece of wet litmus paper into the crevices at the gingival margin.

No doubt the *rationale* of the slight acidity of the secretion of the gums is to prevent to a certain extent the flourishing of the microorganisms of the mouth, and although the alkalinity at gum margin allows of a rapid development of the microorganisms, the amount and strength of the alkaline solution is in fairly clean mouths sufficient to keep the teeth from destruction by acid produced in fermentation. It will be observed, however, that it would only increase the number and activity of the mouth bacteria if the secretion of the mucous membrane at all parts were alkaline, as these microorganisms grow best in a slightly alkaline medium (K. W. Goadby). I think it will be noticed that this distribution of acidity and alkalinity is the best possible for the prevention of caries. It suggests caution in using alkaline mouth washes.

In the regular arrangement of the teeth the spaces between them are V-shaped, the apex of the V being directed upwards in the case of the lower teeth. The gum bulges into this wedge-shaped space, and so very little of the approximal surfaces of the teeth are more than half a millimetre removed from the gum when it has not receded. Further, it will be observed that the piece of gum filling this space presents a large surface of gum—and so secreting surface—to the approximal surface of the teeth, and we may well be justified in assuming that the antacid or neutralizing action of this is

two or three times as strong as in the case of the cuspid at the spot referred to, especially as the action of the lip is not so near as it is at the buccal side of the neck of the cuspid.

If acid-forming food does lodge in these spaces it must be small in amount, and not only is there the influence of the gum to check the amount of acid formed where certain foods lodge, but there is also the neutralizing action of the saliva, which when mastication is thoroughly performed is constantly rushing through these spaces, and so tending to dislodge any food or acid which may be there. When, however, the arch of teeth is irregular, this V-shaped interspace is nearly obliterated, and the teeth frequently have a relatively long line of contact, or even a surface of contact, extending from the neck of the tooth to near the coronal surface. The beneficial action of the secretions of the gum on the fermenting food, if it lodges in such places, is at a greater distance than in the normal V-shaped spaces, and there is a diminished gum surface to throw out the alkaline secretion. Moreover, irregular teeth often lodge food stuffs more readily than regular teeth. Another effect of irregular teeth is to keep off the tongue and cheeks from the less inwardly or outwardly projecting teeth, and to diminish the amount of cleansing by the friction of the tongue and cheeks and of the movements of the saliva over certain protected parts of the irregular teeth.

While speaking of the influence of the gums in thus being a prominent factor in the prevention of caries, I may refer to the fact that some authors appear to blame the secretions of the gums, not only for being slightly acid, but also for being viscid and a cause of caries. I can at will produce a viscid coating over my teeth by eating sweets, and after having set others to do likewise have found the same coating on their teeth. I see no reason whatever to blame the gums for this condition, especially as cane sugar is known to undergo a viscous or mannitic fermentation. Schützenberger gives the following equation, which will explain what theoretically takes place:  $25 \text{ C}_{12}\text{H}_{22}\text{O}_{11}$  (cane sugar) +  $25 \text{ H}_2\text{O}$  (water) =  $12 \text{ C}_{12}\text{H}_{20}\text{O}_{10}$  (gum) +  $24 \text{ C}_6\text{H}_{14}\text{O}_6$  (mannite) +  $12 \text{ CO}_2$  (carb. diox.) +  $12 \text{ H}_2\text{O}$ .

No doubt this viscous gum acts as a very effective barrier to the beneficent influence of the saliva, and as this fermentation takes place along with lactic acid and other fermentations, and the deposited gum acts as a food-catcher, retainer and acid fermentation protector, we need scarcely wonder that there is a popular impres-

sion that sweets are bad for the teeth. It may here be observed that sugar does not *appear* to be one of the lodgable foodstuffs, and when it is consumed quickly alone, or with fibrous foods, little or no lodging results. But if it be taken in the form of sweets, which gradually melt and are swallowed, and if this be persisted in for some considerable time, there is continuously a little converted into gum by the viscous fermentation. This accumulates so long as the eating of sweets is continued. It is impossible to observe the coating after eating a little sugar when the teeth are originally well cleaned, and in order to get the gummy coating well marked it is necessary to eat sweets more or less continuously for hours. Similarly, when grapes are eaten to a great extent, as in the "grape cure," the same results seem to be brought about by the continuous supply of sugar, and on account of the skins not being chewed, and the presence of the pips encouraging merely the bursting of the grape, practically no chewing is performed, and the resulting effect on the teeth is injurious. So, when infants are given a sucking-bag containing sugar and milk to soothe them, there is rapid destruction of the teeth.

The gummy deposit of the mannitic fermentation does not become formed when cane sugar is taken even in quantity if the fibrous part of the sugar cane is chewed with the sugar, as the juices are swallowed before the mastication is finished, and the fibrous part of the cane cleanses the teeth more effectually than a toothbrush, in the manner I have already pointed out, and further the salivary and other secretions are sufficiently stimulated to be able to carry away the sugar before mannitic or other fermentation has had time to form. On the other hand the viscosity due to mannitic fermentation is seen in an exaggerated degree when salivary secretions are more or less arrested, as in some fevers.

Having shown in what manner the crowding of the teeth very seriously increases the liability to be attacked by caries, I shall now refer briefly to two theories of the causes of crowding of teeth, which have gained currency in our best text-books on dental surgery. I shall first refer to the theory that children may inherit large teeth from one parent while inheriting small jaws from the other. Were this theory true we might equally expect to find teeth set widely apart through the inheritance of small teeth from one parent and large jaws from the other; but we do not. Mr. Tomes has brought

forward evidence which goes a long way to prove that the growth of the body of the jaws is greatly dependent on the developing teeth. On *à priori* grounds we may be justified in going still further by saying that the *size* of the body of the jaw is greatly dependent on the *size* of the crowns of the developing teeth. The growth of the jaws and teeth are intimately associated, and from what has already been said, we may be pretty certain that the jaws and teeth are correlated in their growth. I think we are therefore compelled to dismiss this piecemeal conception of hereditary transmission, just as we would discard any theory of heredity which would have us believe that we might inherit the right leg from one parent and the left from the other.

With regard to the second theory of the causation of crowning, namely, the theory that sexual selection has brought about a diminished size of jaw and a consequent inability for it to afford room for ample dental arches, Mr. Tomes, while admitting that much may be said against the theory, argues as follows: "For if the type of face nowadays considered to be beautiful be investigated, it will be found that the oval, tapering face with a small mouth, etc., does not afford much room for ample dental arches. On the other hand, the type of face which we considered bestial has a powerful jaw development. Perhaps generations after generations seeking refinement in their wives may have unconsciously selected those whose type of face hardly allows the possibility of a regular arrangement of the full number of teeth."

Now on esthetic points there is room for considerable divergence of opinion, and I have no doubt there are many artists who consider a well-developed chin and mental prominence to be a characteristic which is certainly more human than bestial, and that the broad dental arches giving fullness to and preventing the falling in of the cheeks, and consequent prominence of the cheek bones, may help to beautify a face. So, too, full arches of teeth prevent the inane appearance caused by falling in of arch in the cuspid region. Nor is the oral orifice necessarily large when the oral cavity is large; indeed, the oral orifice *appears* somewhat smaller when the arch of teeth is of normal breadth. Add to this the fact that crowding of the teeth very frequently gives rise to anterior protrusion of the upper incisors, and then add the effects of the greater frequency of caries, toothache, probable loss of teeth, possibly suppurating roots,

anemia, digestive troubles, ill health, ill temper, etc., following in their wake, and we may be justified in doubting whether [man did, generation after generation, select such types. But let us look at the question from another point of view. If there has arisen in man an unconscious preference for small-jawed women, this must have come about in one of two ways; either those possessing this instinctive preference have survived, and the others, who did not possess it, have fallen out of existence, or there must have been a superorganic evolution of an ideal of beauty which was more or less universally recognized. I think the former idea is out of the question, and the latter would have no appreciable effect, compared with the natural, inherent and powerful passion which attracts the sexes. Since Darwin's time ideas on the subject of sexual selection have been greatly modified, and with regard to mankind, further than the effect which it has in selecting types with qualities arising from full vitality, good health and its concomitants, it has little effect, and it must always be ultimately controlled by natural selection.

Now let us consider what must have been the effect of natural selection on the teeth since the advent of civilization, or since many of the foodstuffs were more or less riddled by machinery and injudicious cookery of their accompanying fibrous part. I have pointed out that this gives rise to a diminished size of tongue, to a crowded and irregular set of teeth, and to caries. We know that when an organ breaks down from the effects of disease, the individual is at a disadvantage in the struggle for existence. That this is recognized with regard to the organs of mastication need hardly be more than mentioned, as already many civil, military and public appointments may not be held by those who have bad teeth, and indirectly the influence of diseased teeth on the general health is only too well known. Unfortunately, too, the influence on the general health may extend over the larger and more important part of a lifetime. Now dental caries is said to be the most prevalent disease that afflicts mankind, and irregularity of the teeth is the rule rather than the exception among the civilized. Since this very prevalent condition of irregularity predisposes to caries and its consequences, it will be obvious that those people who have rather small teeth will be more likely to have a regular set of teeth, as such teeth will be able to arrange themselves round the small civilized tongue with regularity. Consequently, since the advent of civilization and



concomitant refinement of foodstuffs those people with large teeth were likelier to be at a disadvantage in the struggle for existence through a considerable predisposition to a very prevalent disease, and so, on the whole, left fewer offspring than did those with relatively small teeth. We should also expect from this cause a correlative diminution of the alveolar part of the jaw at least. Now if we compare well-developed teeth among the uncivilized with well-developed teeth among the civilized, we find that the teeth of the latter have diminished in size. This theory therefore we see is strictly in accordance with facts accumulated inductively. We find, however, that the mental prominence is more developed among the highly civilized, and this suggests the explanation of the reason of the existence of the mental prominence. I think it might be reasonably supposed that it is, as it were, the rudiment of the more anterior prolongation of the body of the mandible in lower animals.

We find, too, that the third molar, more than any other, has diminished in size. This, according to the theory which I have put forward, is to be accounted for in the following way. As was pointed out in a previous article, the position of the teeth is determined to a great extent by the tongue. Now if during the advance of civilization the tongue from the causes mentioned has diminished in size, the prominence of the teeth, and so of the basi-alveolar line, must have diminished anteriorly and have brought about orthognathism. The whole arch of the teeth must be more posterior, and if the diminished size of the tongue is slight, as we may assume it was in the earlier stages of civilization, the arch of teeth would tend to be regular until appearance of third molars. When, however, the tooth is taking up its position, the more posterior position of the rest of the teeth makes it press unduly from behind, and either the whole arch of teeth must be thrust forward and a space be formed in front of the tongue, or some one or more of the teeth must take up an irregular position, and this latter we know does occur. Now as this would predispose to caries (and we know that even the most savage races are not wholly exempt from this disease) and the sequelæ already referred to, those individuals with relatively small third molars would have the advantage, and have a greater chance of leaving offspring than would those who had large third molars, and unlike the more anterior teeth, variability in shape during the diminution in size would be of relatively little consequence. Thus

we have a reason for the more rapid diminution in size of the third molar than of any of the others without assuming the inheritance of acquired characteristics. Hence, too, arises the benefit of retarded eruption of these teeth.—*Jour. Brit. D. A., Feb. 1900.*

\* \* \*

**RELIEF OF TEMPORO-MAXILLARY ANKYLOSIS BY EXCISIONS OF NECK AND CONDYLE OF LOWER JAW.** Greig (*Practitioner*, Dec. 1899) holds that it is useless to discuss operation for the relief of ankylosis of the jaw, other than excision of the neck and condyle, because the results obtained by this procedure are so vastly superior to those obtained by other methods.

The incision commences about on a level with the upper margin of the orbit, just over the temporal artery, which can easily be felt pulsating. It is carried downward and slightly backward till it reaches the zygoma, a fingerbreadth in front of the external auditory meatus. It is then continued directly downward until it reaches the level of the anterior attachment of the lobule. The incision includes the skin, superficial and deep fascia; this flap is then reflected downward and forward. The auricular arteries of the superficial temporal are divided. The auriculo-temporal nerve remains untouched behind the incision, while the temporal artery and the upper branches of the temporo-facial division of the facial nerve, except perhaps a few fibers to the occipito-frontalis muscle, are carried downward and forward in the flap. It is sometimes necessary to divide the superficial temporal artery at the upper end of the incision, and if so, it is better secured with a suture than with a ligature, as the superficial fascia here is rather dense, and the ligature may be rubbed off in subsequent manipulations. The flap having been freed so far as the lower border of the zygoma, the masséteric fascia is freely divided along the margin of the bone, and it, with the parotid, is pulled downward and forward also. This is a transverse incision, but a vertical notch may be made also, if necessary, to allow of more free manipulation. The knife is now entered below the zygoma and carried down to the condyle, and thence a vertical incision is carried through the masseter muscle between its fibers as low as the lowest level of the sigmoid notch, and the muscular fibers are separated by a periosteal elevator. Guided by this instrument a chisel is now conveyed down to the bone. The chisel is next lateralized at the lower angle of the

incision, and the neck of the bone is cut through obliquely from below upward, the anterior part being cut at the lowest level of the sigmoid notch. It is important that the bone be chiseled through at its lower limit first, because it is below the level of the internal maxillary artery, but chiefly because the bone is in a way pyramidal, and it is easier to cut through the base of the pyramid after the apex has lost its support by separating it from the rest of the jaw. The chisel is then applied at the site of the joint, and the base of the pyramid divided. The loosened portion is then drawn forward into the wound with forceps, and the external pterygoid muscle cut loose. If now the ankylosis be unilateral, it will be found quite easy to separate the dental arches, but if this cannot be done the chisel is slipped forward across the sigmoid notch and the coronoid process divided. There is no bleeding. The wound is stitched up and no drainage is required.

The cases reported by the author constitute a series at once interesting and instructive—interesting because it shows that the condition is entirely curable, that the muscles, even after many years of disuse, resume their functions within a few days after their utility is made possible; and instructive because it shows that with a carefully planned incision and subsequent dissection the entire condyle, neck, coronoid process, and even a portion of the ascending ramus of the jaw can be removed with but little deformity and paralysis.

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## DOC RAFFLEBONES ON LIVE DENTAL TOPICS.

### CANTO I.

Hear th' dentists talkin' bugs—  
    Bacteery bugs!  
What a load of windy jabber nearly every dentist lugs!  
How they chatter, chatter, chatter,  
    When societies convene—  
Provin' only thet a smatter  
Of th' subject o' ther clatter  
    Is th' utmost they c'n glean.  
But they wrangle  
An' they jangle  
When they tackle this old tangle—  
Each a vouchin' fer some special brand o' drugs.

While th' public keeps a goin'  
 On its keerless way, not knowin'  
 Thet its mouth's alive an' growin'  
     With a billion bloody bugs—  
 Er thet death is lurkin' near 'em,  
 An' th' people— they won't hear 'em  
 When the dentists try to skeer 'em  
     Into scrubbin' out ther mugs.  
 People ain't so dreadful skeery  
 In regard to tooth bacteery,  
 So they seem a little leery  
     When it comes to usin' drugs,  
 To prevent th' propagation of th' bugs—  
     Of th' bugs.  
 Of th' bugs, bugs, bugs, bugs—  
     Bugs, bugs, bugs—  
 Th' thousand, million, billion little bugs!

## CANTO II.

See th' front teeth with th' crowns—  
     Golden crowns!  
 What a world o' giddy glitter in th' human mouth abounds!  
 In th' darkness o' th' night  
 How they glint an' glisten, bright,  
 If a ray just strikes 'em right—  
     Fair an' square.  
 How they glisten! how they glow!—  
 In th' daylight how they show!  
 How they shimmer, an' they glimmer, an' they glare!  
     An' how many people wear 'em—  
 Though ther's some as can not bear 'em  
 Who facetiously compare 'em  
     To a "horrid old tin can!"  
 But th' thing thet seems most curious,  
 Is thet beauty, sparklin' (spurious),  
 Gits so gosh-all-fired furious,  
     She could fairly lick a man  
 If, despite expostulation,  
 He insists on osculation  
 On her scintillatin', radiatin' tooth,

How she flares!  
How she glares!  
At the dentist how she stares,  
If, forsooth,  
He should, quiet-like, just mention  
A perffessional intention  
Of devisin' some prevention—  
Some sort o' ginerall plan—  
Thet'll stop th' "silks an' laces,"—  
Giddy girls, in lowly places,  
From a spilin' purty faces  
With th' brilliant front tooth crowns.  
An' they'll wrangle  
An' they'll jangle,  
Till it seems a hopeless tangle!  
Each a clingin' to th' notions he propounds,  
But th' public keeps a goin'  
On its keerless way, not knowin'  
Thet th' gold it be a showin'  
As a beauty mark's a fake—  
Thet of all th' silly styles—  
Aped by old er juveniles—  
Thet of "scintillatin' smiles"  
Takes th' cake!  
But in matters of appearance  
People ain't for interference;  
An' the dentists they regard as sort o' clowns,  
If they mention  
An intention  
Of devisin' some invention  
Thet'll raise ther avocation to much higher, higher grounds,  
An' prevent th' glint an' glitter of th' crowns—  
Of th' crowns—  
Of th' crowns, crowns, crowns, crowns—  
Crowns, crowns, crowns,  
Th' gleamin' an' th' screamin' golden crowns!—

*Dental Topics.*

MICHIGAN LAW EFFECTIVE.—A dentist practicing in Detroit without a license was recently fined \$25.

# The Dental Digest.

PUBLISHED THE TWENTY-EIGHTH DAY OF EVERY MONTH

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Where All Communications Should be Addressed.

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## Editorial.

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### DATE OF NATIONAL MEETING CHANGED.

At the request of numerous members of the National Dental Association, a postal-card vote was taken to ascertain which of three dates, June 26, July 3 or July 10 would be most acceptable to the membership. The replies are nearly all in, and it appears that July 10 is favored by three-fourths of those who expect to attend the meeting, and the time of convening will therefore be changed to that date.

The state societies are now about to hold their annual meetings, and we would urge that they elect delegates who can attend the meeting, and thus broaden the sphere of usefulness of the National. All those who have papers which they wish to bring before the Association should communicate with the proper sections.

### A GREAT VICTORY FOR THE DENTAL PROFESSION.

What is generally conceded to be the most important patent decision and decree in the history of dental jurisprudence was recently handed down by Judge Grosscup of the United States Circuit Court. We print the decision in full and also the affidavit of the clerk of the court:

*Decree of February 15, 1900.*

United States Circuit Court, Northern District of Illinois, Northern Division.

Thursday, February 15, 1900.

Present Hon. Peter S. Grosscup, Circuit Judge.

Robert B. Donaldson and the S. S. White Dental Manufacturing Co. }  
vs. } 24191.

Dental Protective Supply Company of the United States.

This cause coming to be heard upon full pleadings and proofs, and having been argued by counsel for the respective parties, Mr. Joseph C. Fraley and Mr. Melville Church, in behalf of complainants, and Mr. Charles K. Offield, in behalf of defendant, and the same having been duly considered by the court:

It is hereby ordered, adjudged and decreed that the Letters Patent declared upon in the above entitled cause, granted Robert B. Donaldson under date of July 14, 1885, and numbered 822,265, for an alleged New and

Useful Improvement in Dental Instruments, are invalid and void; and that the bill of complaint in the above entitled cause be therefore dismissed at complainants' cost for want of equity.

Northern District of Illinois, } ss.  
Northern Division.

I, S. W. Burnham, Clerk of the Circuit Court of the United States for the Northern District of Illinois, do hereby certify the above and foregoing to be a true and complete copy of the Decree entered in said Court on the 15th day of February, 1900, in the cause entitled Robert B. Donaldson and the S. S. White Dental Manufacturing Company vs. Dental Protective Supply Company of the United States, as the same appears from the original record of said court now remaining in my custody and control.

In Testimony Whereof, I have hereunto set my hand and affixed the seal of said Court at my office in the city of Chicago, in said District, this 20th day of March, 1900.

S. W. BURNHAM, Clerk.

[SEAL.]

It will be seen that this decision completely invalidates the Donaldson broach patent, and dismisses with costs the complaint of the S. S. White Co. The litigation has extended over several years, and while the ultimate success of the Dental Protective Supply Co. was never doubted, the decision is exceedingly gratifying to every member of the Protective Association. The Trust has contrived for years to postpone the inevitable day when its claims would be put to the test, and its boasted patent rights would be shown in open court to be worthless.

Exactly two years ago—in March, 1898—the DENTAL DIGEST printed the following in an editorial, exposing the S. S. White Co., and boldly announcing our belief that the Donaldson patent was not worth the paper it was written upon:

The Protective Association, with its ally, the Dental Protective Supply Company, is engaged in a desperate legal fight to determine the validity and value of the Donaldson barbed broach patent. The S. S. White Dental Manufacturing Company claims to have the exclusive right to sell this broach, and the testimony already taken shows that the dental profession have thus far paid that company about \$200,000, as royalty under this patent, and will have to pay about \$200,000 more before the patent expires. We believe this patent to be entirely worthless and invalid, and that the money already filched from the dentists by the S. S. White Company is simply an act of spoliation without justification.

*The result is precisely as predicted.*

The importance of Judge Grosscup's decision can hardly be over-estimated. Every dentist in the United States has a direct financial interest in this matter. It will readily be seen that while the decree

is primarily the ending of a protracted contest between two supply houses directly and the Trust vs. The Dental Protective Association indirectly, in a broader sense it is a great popular triumph for the whole dental profession. The defeated company represents corporate greed through unjust patent monopoly, while the Dental Protective Supply Co. stands for affiliation, organization and cooperation.

The porcine characteristics and qualities of the S. S. White Dental Mfg. Co. were never before so clearly shown. It is perhaps not generally understood that the S. S. White Co. do not make the Donaldson broach, but such is the case. They merely buy them from the patentee, and of course undertake no business risk whatever, merely having the exclusive right to sell the broach, and charging an exorbitant royalty by virtue of such privilege.

In view of the fact that the Donaldson patent has been declared invalid by the United States Circuit Court, we think the S. S. White Co. should refund the money it has extorted from the profession by virtue of its alleged patent. The fact that the Dental Protective Supply Co. during the pendency of expensive litigation sold the "Fellowship" broach at \$1 per dozen, while the S. S. White Co. demanded \$2.50 for every dozen Donaldson broaches, is a practical admission that \$1.50 of the purchase price was collected by virtue of a worthless patent right. Now that the patent has been declared invalid, the S. S. White Co. in all common decency and fairness are under obligation to every purchaser of a Donaldson broach to refund the overcharge made under the assumption that the patentee was entitled to remuneration; and under certain conditions they could be compelled by law to disgorge the sum collected.

This litigation should furnish a striking object lesson to the dental profession, and we desire at this time to call the attention of every member thereof to the necessity of supporting the Dental Protective Association and its ally, the Dental Protective Supply Co. It is impossible for any dentist in his individual capacity to resist the encroachments of corporate monopoly of various kinds. Some sort of a patent can be secured on almost anything, but only a few of the thousands issued are really legal or represent any practical value. It frequently happens that an utterly worthless patent right is taken up by a powerful and wealthy corporation, and if there is no organized opposition the company continues to prey upon its hapless customers during all the years the spurious patent has to run. It is an



exceedingly significant fact that since the Protective Association has become a power in the profession the Trust has not exploited so many patents as heretofore.

Do not let it be understood that we are opposed to patents, for we are in favor of all legitimate ones. It is necessary for the Dental Protective Supply Co. to take out patents upon its inventions, for if it did not, some one in the employ of the Trust would probably be hired to patent said inventions, and in a short time suits would be entered against the Supply Co. and its friends to prevent them from using their own appliances. The Dental Protective Supply Co. was started as an ally to the Protective Association, and the time is near at hand when every dentist in the land will see what the Trust perceived some time ago, viz., that these two organizations are a powerful barrier against corporate greed and intimidation of various sorts. Perhaps the profession now sees why the Trust has not hesitated to adopt any measures, no matter how questionable, to wipe out if possible the Association and Supply Co.

We do not regard this decision as a personal triumph. It is a victory for the profession at large. The S. S. White Co. has never before met such a defeat—in fact, has never felt the curb. The collapse of the Donaldson broach patent is a demonstration of the efficacy of organized effort for defense. If the dentists of the United States will continue to sustain us in the work of protection and defense, the power of the dental Trust and other patent organizations may be still further reduced, and the result will redound to the benefit of every member of the profession.

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## Notices.

### TRI-STATE DENTAL ASSOCIATION.

The Tri-State Dental Association of Indiana, Kentucky and Illinois will meet at Evansville, Ind., May 8-11, 1900.

W. H. BROSMAN, Sec'y, Albion, Ind.

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### NEW YORK STATE DENTAL SOCIETY.

The thirty-second annual meeting of this body will be held at Albany, May 9 and 10, 1900. The program is as follows: President's annual address, F. LeG. Ames; correspondent's report, R. Ottolengui; report of committee on practice, H. D. Hatch. Essays will be read by F. J. Capon, Toronto; Jos. Head and E. C. Kirk, Philadelphia; S. B. Palmer and C. H. Barnes, Syracuse; M. F. Smith, New York.

W. A. WHITE, Sec'y, Phelps.

**MISSISSIPPI DENTAL ASSOCIATION.**

The seventh annual meeting of this organization will be held at Jackson, Miss., April 4-6, 1900. The profession at large is cordially invited to attend.

A. B. KELLY, Sec'y, Yazoo City.

**SOUTHERN WISCONSIN DENTAL ASSOCIATION.**

The sixth annual meeting of this organization will be held at Janesville, May 2 and 8, 1900. A good program has been provided and a profitable meeting is expected.

J. H. REED, Sec'y, Lancaster.

**IOWA STATE DENTAL SOCIETY.**

The next annual meeting of the Iowa State Dental Society will be held at Dubuque, May 1-4, 1900. A profitable meeting is assured, and all reputable dentists are invited to be present.

I. C. BROWNLIE, Sec'y, Ames.

**VERMONT STATE BOARD OF DENTAL EXAMINERS.**

The meeting of this organization will be held at the Bardwell House, Rutland, May 28, 1900, at 7:30 p. m. for the examination of candidates to practice dentistry. Applications must be filed with the secretary on or before May 10, 1900.

G. F. CHENEY, Sec'y, St. Johnsbury.

**TEXAS STATE DENTAL ASSOCIATION.**

The next annual meeting of this society will be held in Dallas, May 15-17, 1900. Reduced railroad rates have been secured within the state, and a large attendance is expected. The profession is cordially invited to be present.

J. G. FIFE, Sec'y, Dallas.

**MICHIGAN STATE BOARD OF DENTAL EXAMINERS.**

The next meeting of this body will be held at Grand Rapids, May 8, 1900, at 9 a. m., in the City Council Chamber. Applicants for examination must furnish materials, instruments, including engine, and gold for putting in one or two fillings, as may be required.

F. O. GILBERT, Sec'y, Bay City.

**ILLINOIS STATE BOARD OF DENTAL EXAMINERS.**

The next regular meeting of this body will be held in Chicago, May 3-5, 1900, at the Chicago Business College, 67 Wabash Ave. Applicants must bring instruments and material so as to do practical work. Those desiring to take the examination should notify the secretary ten days before date of meeting.

J. H. SMYSER, Sec'y, 70 State St., Chicago.

**ILLINOIS STATE DENTAL SOCIETY.**

The thirty-sixth annual meeting of this organization will be held at Springfield, May 8-11, 1900. Drs. E. H. Allen, chairman of the executive committee, and J. E. Hinkins, supervisor of clinics, promise an excellent array of papers and clinics. The entire program will be printed in the April number of this journal. All reputable dentists are cordially invited to attend.

A. H. PECK, Sec'y, Chicago.

**KENTUCKY STATE DENTAL ASSOCIATION.**

The thirtieth annual meeting of this organization will be held in Louisville, May 29-31, 1900. Owing to the meeting of the Confederate Veterans Association at the same time, a railroad rate of one cent a mile has been secured. The program will be published in our next issue. The committee have spared no pains to make the meeting a success, and a profitable time is assured. The profession is cordially invited to attend.

F. I. GARDNER, Sec'y, Louisville.

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**NATIONAL ASSOCIATION OF DENTAL EXAMINERS.**

In consequence of a contemplated new movement by the Association, with the probability of considerable benefit both to the state boards and the more advanced colleges whose educational standards are high, the secretary most earnestly requests a new list of officers and members from the officers of the several state boards in the United States and Territories. An early compliance with this request will be heartily appreciated.

CHAS. A. MEEKER, Sec'y, 29 Fulton St., Newark, N. J.

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**RESOLUTIONS ON DEATH OF DR. TENISON.**

At a meeting of the First District Dental Society of the state of New York, March 18, 1900, the following resolutions were presented by Dr. John I. Hart and adopted: Whereas, Dr. Wm. Deane Tenison has been removed by death, it becomes our painful duty to take notice of his demise: therefore be it resolved as the sense of this society, that in the death of Dr. Tenison the profession has lost a distinguished member. As a man Dr. Tenison was genial and affable; as a dentist he was skillful and conscientious. Entering upon the study of dentistry at an early age when all was crude, he wrought his way to success and high position by zeal and industry. We shall miss Dr. Tenison from our ranks. Let us therefore linger for a moment to pay his memory this tribute of respect. Be it further resolved, that a copy of these resolutions be sent to his family and to the dental journals.

B. C. NASH, Sec'y.

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**LATEST DENTAL PATENTS.**

- 644,448. Dental tool for expressing mercury from amalgam, David Aiken, Winnsborough, S. C.
- 648,868. Denture, Willis H. Dwight, Le Mars, Ia.
- 648,898. Dental oven, Harry M. Hill, St. Louis.
- 644,355. Fountain cuspidor, George B. Haycock, Chicago.
- 644,588. Artificial denture, John H. Doyle, Atlanta, Ga.
- 644,640. Dental chair, Gideon Sibley, Philadelphia.
- 644,641. Dental chair, Gideon Sibley, Philadelphia.
- 644,642. Dental chair, Gideon Sibley, Philadelphia.
- 644,643. Arm rest for dental chair, Gideon Sibley, Philadelphia.
- 644,644. Back rest for dental chair, Gideon Sibley, Philadelphia.

- 644,705. Impression band for dentistry, George Evans, assignor to Evans Co., New York.  
 644,808. Artificial tooth crown, Henry D. Justi, Philadelphia.  
 644,932. Dental tool, Clinton W. Miller, Chicago.  
 644,970. Dental flask, Thomas G. Donaldson, Baltimore. .

## LABELS.

- 7,379. "Thymol Myrrh" for tooth-paste, Charles Wright Co., Detroit.

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## News Summary.

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E. H. ALLEN, a dentist at Girard, O., died March 8, 1900.

J. T. STETSON, 62 years of age, a dentist at Boston, died March 12, 1900.

A NEW YORK doctor advertises: "Come to me before life is extinct."

J. H. NELSON, a well-known dentist at North East, Pa., died Mar. 19, 1900.

Z. T. LAROCHE, aged 76, a dentist of Allentown, Pa., died March 22, 1900.

H. C. STICKER, 62 years of age, a dentist at Milton, Pa., died Feb. 28, 1900.

S. P. LARMER, a dentist at Albany, Mo., died from paralysis Feb. 20, 1900.

H. A. PITCHER, 52 years old, a dentist of Neillsville, Wis., died Feb. 24, 1900.

H. M. MALLERY, 39 years old, a dentist at Springfield, Mass., died Feb. 20, 1900.

A. H. TAYLOR, a dentist of Washington, D. C., died Feb. 28, 1900, aged 74 years.

J. S. DEAN, a retired dentist at Easton, Md., aged 77 years, died March 11, 1900.

W. D. TAYLOR, 51 years of age, a dentist at Brownsville, Pa., died March 16, 1900.

ARMY MULES?—A man in Iowa advertises himself as "Veterinary Surgeon and Dentist."

JAS. N. TRUESDELL, a pioneer dentist of Elgin, Ill., died at Orange, Cal., Feb. 26, 1900.

CHAS. A. MURRAY, a dentist at Van Wert, O., died at the age of 46 years, Feb. 21, 1900.

L. L. LANDON, 61 years of age, a retired dentist of St. Joe, Mo., was killed by a train March 6, 1900.

C F. WOELZ, a dentist at Indianapolis, Ind., 39 years of age, died from heart disease March 15, 1900.

THERE'S THE RUB.—He: What would you do if I should die and leave you? She: Leave me how much?

PLINY L. LAWRENCE, one of the pioneer dentists of Chicago, died suddenly of pneumonia March 2, 1900, at the age of 44 years. He had practiced in Chicago for 25 years.

**T. R. BROWN**, 75 years of age, who had practiced dentistry for 45 years, died at Philadelphia March 5, 1900.

**J. A. STULTZ**, 27 years old, a dentist at Long Branch, N. J., died from an overdose of morphin March 1, 1900.

**BALTIMORE DENTISTS OBJECT.**—They fear that the medical bill now before the legislature will affect them in practice.

**FRANK H. FISHER**, a dentist, the husband of Lillian Berri, the prima donna, died March 14, 1900, from appendicitis.

**R. E. SHARP**, 30 years old, a dentist at Edgerton, Wis., died Feb. 23, 1900, from an overdose of morphin taken accidentally.

**ARMY DENTAL BILL.**—On Feb. 27 the House Committee on Military Affairs acted favorably on the bill providing dentists for the army.

**IN THE INTERMEDIATE STATE.**—"And how many children have you, Mrs. Murphy?" "Foive. Two livin', two dead, and wan in Philadelphyy."

**GEO. W. WARREN**, a prominent dentist of Philadelphia, was recently awarded a verdict of \$2,500 for injuries received in a railway collision.

**EVANS' WILL SETTLED.**—The dispute over the late Dr. Evans' will has been settled, and the Philadelphia Museum will receive nearly \$3,000,000.

**RESTRICTION.**—"Shall I go with you and hold your hands while you have your tooth pulled?" "I would rather you would go with me and hold the dentist."

**INDIANA BOARD ACTIVE.**—A number of complaints have been lodged against illegal practitioners in Indiana by the state board, and the cases will soon come to trial.

**MISSISSIPPI EXAMINING BOARD.**—The governor has appointed the following members: P. P. Walker, J. B. Broadstreet, W. R. Wright, F. B. Ferruill, T. C. McNair.

**ALTRUISTIC.**—A dental college has been incorporated at Colorado Springs, Col., and in the articles of incorporation it is stated that the move is not "for pecuniary profit."

**"GOULD'S POCKET MEDICAL DICTIONARY"** has reached its fourth edition. It is a useful little volume of 837 pages, containing 80,000 words. Price \$1. P. Blackiston's Son & Co.

**NEW YORK AFTER ILLEGAL PRACTITIONERS.**—An operator in one of the painless dental parlors of Brooklyn was arrested March 17, for practicing dentistry without a license.

**ALABAMA DENTAL EXAMINERS MEET.**—This organization will meet in Mobile, Ala., Monday, May 7, 1900, at 10 a. m., for the examination of applicants for license to practice.

**NOT OF DIVINE MANUFACTURE**—James, aged three, has shown a lively interest in a "plate" worn by his uncle. He recently asked his mother "Who made my teeth," and when told that "God did," he inquired: "Does he make plates too?"

**DENTIST FOR ENGLISH ARMY.**—One dentist has been appointed for service in South Africa. He has, however, arranged for a corps of assistants who will probably be ordered to follow him.

**MAKING SET OF TEETH IS DENTISTRY.**—A judge in Oregon has recently decided that making and fitting a set of false teeth is an act of dentistry, and that only a dentist can perform such act.

**PAID UP.**—Little Clara: "Dr. Cubebs is often at our house, but I never see him at yours."

Little Bessie: "Of course not. We don't owe him anything."

**PRESERVE YOUR FILES.**—The constant requests which we are receiving for back numbers of the *DIGEST* suggest a note of warning to our subscribers that you preserve your files carefully, as our surplus stock is almost exhausted.

**RELIEF.**—Young Doctor (exultantly): Well, I've been successful with my first patient.

Old Doctor: Of what did you relieve him?

Young Doctor: Ten dollars.

**SMALL FEES.**—The record of small fees for lodge practice, according to the *Bulletin Med.*, is now held by Dr. Larcher, who received from the local lodge in a small town in France 60 centimes, about equivalent to 12 cents, for a night labor case.—*Jour. A. M. A.*

**TO HELP CONSUMPTIVES.**—It is proposed to establish from Denver south a series of plantations, which shall be under state control, but so far as possible will be made self-sustaining by the labor of their inmates. These are to be opened to those consumptives who can afford the price of transportation.

**"PRACTICE OF DENTAL MEDICINE."**—This little volume by Geo. F. Eames, M.D., D.D.S., should be of value to dental and medical practitioners. It was recommended for adoption by the committee on text-books of the National Association of Dental Faculties. S. S. WHITE Co., Philadelphia.

**TO SET CEMENT RAPIDLY.**—If it is desired to have the cement set quickly and remain very hard, add a sparing amount of finely powdered borax to the cement powder and the effect is obtained. This method will give good results in bridgework and in fillings which indicate a quick-setting cement.

**CARBOLIC ACID TO BE DEARER.**—The price of carbolic acid has risen quite rapidly during the past week or two, owing to the impossibility of importing any from Great Britain. The scarcity there is said to be due to the fact that this substance is necessary in the manufacture of lyddite.—*Med. Rec.*, Jan. 1900.

**COLORS GOLD ALLOYS.**—Green gold—Fine gold 2 to 3; silver, 1. Brass yellow gold—(1) Fine gold, 1; silver, 2. (2) Fine gold, 4; silver 3; copper, 1. Pale red gold—Fine gold, 1; copper, 1. Grey gold—(1) Fine gold, 30; silver, 8; steel filings, 2. (2) Fine gold, 4 to 5; steel filings, 1.—*Jour. d. Goldschmiedek.*

**ENGLISH DENTISTS DISCRIMINATE.**—It is claimed that since 1893 the British government has refused to register American dentists on the ground that

the English dental college course is four years, while that in our schools is only three, and that our students are therefore not so well qualified to practice. The state department will take the matter up.

**EMULATION OF KANSAS.**—Following the example of Rev. Chas. M. Sheldon, the clergyman who ran the *Topeka Capital* for a week as "Jesus would do," the editor of a weekly in Maryland announces that next week he will begin running his paper as Captain Kidd would have run it, and he notifies all delinquent subscribers to be on their guard.

**SPOKANE (WASH.) DENTAL ASSOCIATION.**—An organization with the above name was organized Feb. 26, 1900, with the following officers: Pres., M. D. Thurston; V.-P., C. F. Hanchett; Sec., A. B. Bailey; Treas., H. D. Hawver; Com. on Constitution and By-Laws, H. D. Hawver, F. R. Fisk, W. A. Wright; Com. on Entertainment, F. R. Fisk, C. Mann, E. Pitwood, G. M. Freeman.

**ODONTOLOGICAL SOCIETY OF WESTERN PENNSYLVANIA**, at its annual meeting, held March 13, 1900, elected the following officers for the ensuing year: Pres., J. F. Thompson; V.-P., C. W. Bard; Sec., W. E. Van Orsdell; Asst. Sec., J. A. Calhoon; Treas., J. A. Libbey; Board of Censors, H. J. Horner, J. A. Calhoon, W. H. Sowash; Ex. Com., S. M. Stauffer, A. G. Rinehart, J. H. Robinson.

**PROTECTION OF THE EYES WHILE SOLDERING.**—By W. T. Jackman, D.D.S., Cleveland. Those who do much solder work will find an immense relief from the glare of the flame by the use of plain smoked glasses when soldering. They should be quite dark, for the glare of the light will enable one to see clearly through glasses so dark that he otherwise could see through but dimly.—*Ohio Journal*.

**PERMEABILITY OF HYPODERMIC NEEDLES.**—Belin writes to the *Polytech. Med.* that he does not care to put his hypodermic needles to his mouth to blow out the drop or so remaining after an injection. He keeps a small rubber bulb and tube with the syringe, and after using the needle removes it and fits the tube of the bulb over the end. As the bulb is squeezed all the fluid is expelled from the needle.—*Jour. A. M. A.*

**OHIO DENTAL BILL.**—A bill was recently introduced before the senate of Ohio providing that the power to license dentists in the state shall be absolutely under the control of the state dental society, which is empowered to submit a list from which the governor must make his selections for the state board of examiners. No colleges which are not members of the National Association of Dental Faculties shall be classed as reputable institutions.

**NOT QUITE MAD.**—Mrs. Peck: Henry, what would you do if I were to die suddenly?

Henry: Pray don't talk of such a thing. I think it would almost drive me crazy.

Mrs. Peck: Do you think you would marry again?

Henry: Oh, no; I don't think I would be as crazy as that.

**CANADIAN DENTISTS PETITION LEGISLATURE.**—The dentists of Ottawa have presented a bill asking that, inasmuch as the teeth of children in the public

schools were suffering from neglect, an inspector should be appointed who should report on the condition of the teeth of the children not having certificate from the family dentist, and such report should be forwarded to the parents of the children, with instructions to have the defective teeth attended to.

**DENTAL TRADE ASSOCIATION.**—According to newspaper report the Dental Trade Association of the United States will hold its annual convention at Atlantic City, N. J., in June. Will some of the Trust houses kindly explain what the Dental Trade Association is, and also the object for which it is created?

**LOUISIANA STATE DENTAL SOCIETY.**—At the annual meeting of this organization, held Feb. 24, 1900, the following officers were elected for the ensuing year: Pres., C. V. Vignes; First V.-P., R. L. Zelenka; Second V.-P., A. L. Plough; Treas., C. Mermilliod, Sr.; Rec. Sec., C. N. Gibbons; Ex. Com., V. K. Irion, P. J. Friedrichs, C. Ratzburg, T. M. Comeoys, C. Mermilliod, Sr.; Board of Dental Examiners, G. A. Collomb, J. E. Woodward, R. L. Zelenka, C. B. Johnston, J. S. Couret.

**BIBLICAL KNOWLEDGE.**—Young men before entering one of the principal medical schools of this country are examined as to their general knowledge. One of the questions given to the candidates for one of these schools last year was: "What are the names of the books of the Bible?" Of one hundred and twenty answers, only five were correct. Among the names of books given were: "Philistines," "Marcus Aurelius" and "Epistle to the Filipinos."—*February Ladies' Home Journal*.

**REMOTE RESULTS OF DISEASED DECIDUOUS TEETH.**—M. Parinaud has shown that very slight dental lesions, especially at the age when the deciduous teeth are being lost, may be the starting-point of osseous and periosteal disease of the lower border of the orbit, and of fistulas in the region of the lachrymal duct and the lower eyelid; also of periostitis of the nasal canal. Intimate relations exist between the cuspid tooth and the orbital and lachrymal regions.—*Alph. Pickin, La Monde Dentaire*.

**UP-TO-DATE BLACKMAILING.**—A student was recently arrested at Gratz on a charge of endeavoring to obtain money by menaces from an old lady whose dwelling he threatened, failing cash, to inundate with a selection of pathogenic microbes. It is even stated that when searched the ingenious but indelicate student was found in possession of cultures of cholera, tetanus and typhoid fever bacilli. This is quite a novel application of bacteriological knowledge but hardly one which can be commended for imitation.

**ATHETOSIC MOVEMENTS OF FINGERS A SIGN OF IMPENDING CHLOROFORM ASPHYXIA.**—Koblanck (*Semaine Med.*) calls attention to the rhythmic athetotic movements which occur sometimes in chloroform anesthesia as the reflexes are abolished. He considers them a warning of impending asphyxia. The administration of the chloroform should be suspended at once and the mask removed, when the movements will subside and the narcosis proceed smoothly. Otherwise asphyxia speedily follows.—*Jour. A. M. A.*



"INTERSTITIAL GINGIVITIS, OR SO-CALLED PYORRHEA ALVEOLARIS," Eu. gene S. Talbot, M.D., D.D.S. Apologies are due the author for the tardy announcement of this interesting work. Of it the committee on text-books of the National Association of Dental Faculties reported that "It contains evidence of laudable and extensive research, but the subject is still a matter of so much controversy and diversity of opinion as to make unfeasible a text-book upon it at the present time." S. S. WHITE Co., Philadelphia.

MECHANISM OF TENDON CRACKING.—It is well known that there are certain individuals who make a cracking sound in performing some movements. In a general way we have all taken it for granted that the cracking was due to the slipping of some tendon. Dr. Schuster lately demonstrated this in Berlin *Deutsche Med. Woch.* on a man who made the noises with his feet and hands. In the case of the foot the tendon of the peroneus slipped over the external malleolus, and in that of the hand the tendons of the flexor digitorum profundus slipped over the heads of the metacarpal bones.—*N. Y. Med. Jour.*

VERBAGE.—The following is a verbatim copy of the discussion by a member of a prominent state dental society on a paper read before that body: "I will say, while I am not prepared to discuss the paper, that I am exceedingly pleased with it. I am interested along that line, and it is in the right direction. While I have had no experience that I could relate as being especially apropos at this time, I can say that I was glad to hear that paper, and I think that the interest in that particular line is increasing and can not help but bear excellent fruit." Yet we wonder why there is not sufficient interest taken in society meetings.

EFFECT OF COLD ON MICROORGANISMS.—Prudden has shown that a temperature many degrees below the freezing-point is ineffectual in destroying the typhoid bacillus, but now it has been shown that no known degree of cold will destroy these and some other pathogenic microbes. A paper was read last week before the Royal Society in London, in which a number of startling experiments by Professors Dewar and MacFadyen and Sir James Creighton Brown were reported. In these experiments typhoid, cholera, diphtheria and other pathogenic bacteria were submitted for twenty hours to the temperature of liquid air (—310 deg. F.), and were shown later by culture tests to be still alive.—*Med. Record.*

DENTISTRY IN BELGIUM.—The government in Belgium is considering a bill advocated by the majority of physicians to suppress the diploma of dentistry and allow only the practice of dentistry to qualified physicians as a branch of the medical sciences, like laryngology, ophthalmology, etc. Beco, the chairman of the special committee, enumerates among the reasons for this step the overcrowding of the medical profession and the necessity for considering dentistry as an important and lucrative specialty in the domain of general medicine. The standard that has hitherto been required of dentists has been so low that some change is imperative, and suppression of special diplomas to dentists seems the simplest and most practical solution of the question under the present circumstances.—*Jour. A. M. A., Feb. 1900.*

**NEBRASKA'S MEDICAL STANDARD.**—The four-year clause of the Nebraska medical law has been sustained by the district court in that state. An applicant who presented a three-year diploma was refused a certificate in October last by the medical board. He appealed to the board of health, consisting of the governor, attorney general and superintendent of public instruction, and it overruled the decision of the medical board and ordered that a certificate be issued. The Lincoln Medical College, a four-years' graded school, applied for an injunction in the district court at Lincoln on the ground that the proposed action was a direct violation of the medical statute. On the showing made, the injunction against the board was made permanent, thus upholding the right of the legislature to fix the standard of medical education for the state.—*Jour. A. M. A.*

**HUTCHINSON'S TEETH.**—Dr. Eugene S. Talbot said that Jonathan Hutchinson never intended that his name should be used, as it has been for the last fifteen years, in regard to the peculiar form of teeth named after him. He distinctly stated that only about 10 per cent of the cases of syphilis present notched teeth. In the opinion of Dr. Talbot, any constitutional disease, or any condition of the mother in which there is starvation or worry, causing malnutrition, will produce this arrest of development of the fetus *in utero* at about the third to the fourth month. The teeth begin to develop at the sixth week of fetal life. The arrest of development is simply a return to the atavistic condition. The structures of the face, jaws, alveolar processes and teeth are transitory, and therefore more liable to become affected than any other structure of the body.—*Jour. A. M. A.*

**RAILROAD GRAMMAR.**—"What was the next station?"

"You mean what is the next station."

"No. What was it, isn't it?"

"That doesn't make any difference. Is is was, but was is not necessarily is."

"Look here, what was, is, and what is, is. Is was is, or is is was."

"Nonsense. Was may be is, but is is not was. Is was was, but if was was is, then isn't is or was wasn't was. If was is, was is was, isn't it. But if is is was then—"

"Listen. Is is, was was, and is was and was is; therefore is was is and was is was, and if was was is, is is is, and was was was and is is was."

"Shut up, will you! I've gone by my station already."—*Life.*

**FREE USE OF DRINKING WATER IN ACUTE HEMORRHAGE.**—Dr. Louis Kolipinski (*Maryland Med. Jour.*, Dec. 30, 1899) recommends that under circumstances where transfusion cannot be practiced for want of apparatus or from any other reason, the refilling of the vascular system may be effected by the simple expedient of causing water to be given to drink, or introduced into the stomach with a tube almost continuously until the bloodless victim begins to revive and react. It is, he says, astonishing to see to what an extent a liberal supply of water can be pushed, and with it is apparent a return of strength and mental activity, slowing and deepening of the respiration, and the restoration of volume and tension to a pulse that before

could not be felt. The author records a case of hemorrhage during typhoid fever in which this method worked admirably. It is useful also in vaginal, obstetrical and other medical hemorrhages.

**TO CUT GOLD FOIL.**—By Henry Barnes, M.D., Cleveland. In preparing gold foil in the form of ribbons I have found the following an easy and effective method: Take a sheet of writing or other white paper, place one sheet of gold on this, then cover with another sheet of paper, and so on until you have as many sheets of gold as you wish to use. After placing the last sheet of paper over the foil, fold the whole over twice, as you would fold a letter, then with shears cut paper and all into strips of desired width. In this way the foil does not fold on itself for there is paper between each sheet. When cut, remove the strips of paper and the foil will be found to be cut true, with no torn edges, it has not come in contact with the hands, and is in the best possible condition for working.—*Ohio Journal*.

[Why not simply leave the foil in the original books, thus saving time and labor?—ED. DIGEST.]

**INFLAMMATION OF LIP.**—Malcolm Morris (*British Journal of Dermatology*, August) reports a case of desquamating and suppurating superficial inflammation of the lower lip in a woman aged forty. This condition had lasted for over six months and had been a source of great disfigurement and discomfort to the patient. When brought recently for treatment it was observed that she suffered severely from pyorrhea alveolaris (Riggs' disease). Most of the teeth had been extracted, and the gums were in a much healthier condition, with the result that the lip had improved very much, and slight desquamation of the epithelium was all that could be observed. Much atrophy of the mucous and submucous tissues had resulted. Dr. Galloway said that he considered many cases of chronic inflammation with desquamation of the lip depended on purulent conditions of the gums, and this should always receive the first attention during the treatment of these cases.

**MEDICAL ETIQUETTE AND A LEGAL DECISION.**—We have heard of medical etiquette occasionally being the subject of attack and ridicule in court proceedings, but a recently decided case shows that it has at least a legal sanction. A physician was called to a case and rode six miles only to find another physician in charge. He therefore refused to treat the patient, but sent in a small bill for his time. Being obliged to sue for his pay, he was met with the defense that he had rendered no service and was therefore entitled to no pay. The county judge, however, held that the observance of medical etiquette was legitimate for the physician, and that when called to see a case and finding it in charge of another, the law implied that he was not obliged to take the case. The decision was therefore in the doctor's favor, the judge recognizing even the finer points in medical ethics, which are not always duly appreciated by jurists.—*Jour. A. M. A.*

**MILK AS AN ANTIDOTE.**—The *Pharmaceutical Era* calls attention to the fact that milk is a useful antidote to most cases of poisoning. By its fatty matter and its casein it protects the mucous membrane against the corrosive action of acids, alkalies and other caustic or irritant substances. The chemi-

cal role of casein is here very remarkable and valuable. It is able to fill the double part of acid and base, in the presence of compounds with which it is brought in contact. It not only coagulates under the action of acids by combining with them, but it also yields a precipitate with most mineral bases, forming insoluble caseates. If precipitation does not immediately take place with a product having a given reaction—acid or basic—this precipitate will appear through the intervention of another substance of contrary reaction. Dr. Crowzel proposes to add to the milk five per cent of borate of soda. This salt is nontoxic and is employed because it precipitates as insoluble borates all the mineral bases, except harmless or slightly poisonous alkaline bases.

**A HINT TO DENTAL AND OTHER WRITERS.**—Say what you have to say and stop. Do not beat about the bush in order to have a paper fill forty-five minutes instead of fifteen. Some papers have as many twists in them as the parody of "Hiawatha," which follows:

With the skin he made his mittens;  
 Made them with the fur side inside,  
 Made them with the skin side outside.  
 He, to get the warm side inside,  
 Put the inside skin side outside;  
 He, to get the cold side outside,  
 Put the warm side, fur side, inside.  
 That's why he put the fur side inside,  
 Why he put the skin side outside,  
 Why he turned them inside outside.

**BURDEN OF PROOF AS TO VALUE OF SERVICES.**—In *Harrington vs. Priest*, wherein it was sought to recover \$250 for dental services, and the defendant set up a counter claim for \$1,000 damages for poor work, the supreme court of Wisconsin reverses a judgment for the plaintiff, on account of error in the instructions given the jury. It holds that the burden of proving that the services rendered were performed with reasonable skill, and were worth the sum mentioned, was on the plaintiff. And it approves of the instruction: "The burden of proof, so far as this case is concerned, rests upon the plaintiff to establish his side by a fair preponderance of the evidence, which is sometimes called the 'down weight of evidence.' If you find from the testimony as I say, that the plaintiff did this work in a reasonably careful and skillful manner—in such manner as dentists of ordinary standing, of good standing in this community or this vicinity would have done it—and that the price he has charged is a reasonable price, then you should return a verdict in favor of the plaintiff for the full amount claimed." But the supreme court says that the judge went wrong when he added to this the further and inconsistent charge that, in establishing the fact that work was improperly done, the burden is on the defendant. Confessedly, says the supreme court, the plaintiff had the laboring oar. There was no burden on the defendant on this issue to show affirmatively that the services in question were negligently or unskillfully performed, or that they were not worth the sum

claimed. If his evidence in defense left the issue in doubt or uncertainty, the plaintiff could not recover. Under these circumstances, it could not be true that the burden rested on the defendant, "in establishing the fact that the work was improperly done." But when it came to the question of damages under the counter claim, or the other issue, then, the court goes on to state, the defendant could not secure a recovery except that he establish a claim therefor by the preponderance of the evidence.—*Jour. A. M. A., Dec. '99.*

**MACROGLOSSIA** is a very rare condition. J. J. Pratt (*Indian Med. Gazette*) reports a case in a boy  $3\frac{1}{2}$  years old. The tongue protruded about an inch and a half between the teeth, the mouth was constantly open, saliva dribbling, and the patient was unable to masticate food and spoke and drank with difficulty. The tongue had become inflamed eight months before and had gradually enlarged. Under chloroform anesthesia the tongue was drawn out, transfixed by ligatures, which were crossed and tightened, a round incision was made through the whole thickness of the organ behind the teeth marks, and the prolapsed portion removed. The patient made a rapid recovery, and on leaving the hospital was able to eat, drink and speak without difficulty.

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## Original Contributions.

### OUR MISSION—HOW SHALL WE DISCHARGE IT?

BY B. HOLLY SMITH, D.D.S., BALTIMORE. READ BEFORE THE NORTH-EASTERN DENTAL ASSOCIATION, AT HOLYOKE, OCT. 17-19, 1899.

America has long been recognized as the mother country of dentistry, and she has been justly credited with giving a fostering stimulus to the progress and refinement of those practices which tend to elevate the character of operations performed by these specialists. More conservative sections have been content with slight improvement upon old methods, and have accepted charily teachings of a radical nature. Hence any deductions from observations of changes in methods of procedure must be largely the result of a study of American dentistry.

The history of dental practice here is not to be so well understood by reading or observing the history of any one man, but by following the record of his teachings as exemplified in the practice of those who have had opportunity of learning from him. If a practice is to be successful it must be judged by the result, not of one individual's efforts, but of the efforts of the many who essay to pursue it. Thus the reputability of bridge-work, cataphoresis, extirpation of the dental pulp, etc., must be established by an observation of the general result of these practices by the dental profession at large. That this is so is largely the result of the very generous plan of teaching which has been so persistently pursued, and which has received such universal approval in our dental associations. Any thought of personal profit, not associated with individual superiority, has long ceased to have any weight in the average dental mind. If a brother has met with success in any given line of practice he at once thinks it is good enough to report, and never that it would be to his advantage to conceal it.

If these statements are correct, why is it that the average patient seeking dental services does so with fear and trembling and often

with dire apprehension? Is it because the number of cataphoric outfits is insufficient, that cocain is not cheap, that obtundents of great variety do not exist? We are inclined to think that these are not factors in the condition. Is it not because the average dentist believes and freely states and illustrates to his patients that a certain amount of pain is to be expected in dental operations, and if the patient does not expect pain he need not come around? This feeling and plan of practice is partly due to an unwillingness on the part of the operator to deviate from the usual routine of everyday procedure, and partly to the fact that the majority of patients, either because of temperament or willingness to submit to the inevitable, raise only feeble protests to the infliction of suffering. The work, accomplished without serious complaint on the part of the patient, is done to the satisfaction of the operator. Is this right? Can we call such service a conscientious discharge of our obligations?

I contend that the most approved dentistry can be practiced without giving pain; and the reason it is not done is not so much that the means are not to be secured, but that there is not a primary impulse and determination to practice only painless dentistry. The necessity for such practice is not apparent to the minds of many. All would be anxious to adopt some appliance or means which should accomplish expeditiously and with little trouble the object aimed at, but when it resolves itself into a careful use of only those methods which are painless, whatever their expense in time and trouble, they decline to make the effort.

Dentists as a class are mechanically resourceful. Few operations but admit of a variety of ways of performance, and the best method is always sought; not always the easiest, the cheapest, the one that will consume the least time, but the one that will secure the best results—those most enduring, useful, ornamental and natural. As this is true, I can but believe that if the necessity for painless operations were appreciated fully this same resourcefulness would cause the average operator to succeed in practicing painless dentistry with the means at hand.

There are few practitioners but will listen to suggestions of helps in practice; few who do not desire a reputation for skill and cleverness. Do we all strive equally hard to avoid the infliction of suffering? From a careful observation of clinicians at dental meetings I am forced to conclude that many operators demand from their

patients a tolerance to suffering out of all proportion to the necessities of the occasion. Now if this is done publicly we naturally infer that the private practice of these operators does not vary materially. It is not intended that this shall be a criticism, but it is hoped some may agree with the writer that greater effort can and should be put forth to lessen the discomfort and suffering of patients, and to change in the popular mind the old estimate of experiences in dental offices.

With the yearly influx of graduates into the practice of dentistry (an influx plainly out of proportion to the increase of population), some thought must be given to a legitimate and available source of patients for them. I do not believe that any dentist is paid too much for his work, but I do believe that many do too much work—both for their own good and for the welfare of their patients. If we were content to do less, what we do might be painlessly performed, and I have no doubt we should be given cheerfully better remuneration. A few would thus be weeded out of each office. Then has it not come to the knowledge of us all, that countless numbers avoid the dental office and suffer all the ills produced by diseased dental organs, rather than run the gauntlet of dental attention? That this unfortunate condition can be bettered I firmly believe, partly from the fact that careful record fails to reveal any person entertaining such an estimate of necessary suffering, who has been exclusively under my care or that of *some* of my professional brethren—whether in the case of old or young I find this dread and apprehension entirely absent. They make altogether different patients from those trained in the old school, or those whose morbid imaginations have been fed by recitals of exaggerated sufferings of long ago. Dentistry is not necessarily painful, and this truth I would that my professional brethren should both practice and preach until it passes into one of the proverbs of the people. I would have it repeated at the opening of every lecture or professional assembly. I would put it in the mouth of every dentist and friendly patient, and I would insist that operators should not make it a lie.

If the true mission of the dentist is to be studied, we must see at once that he sustains to his patient a unique relation. His life and work have to do with service; yet he is sought as a master. Few of the patients who require extra precaution or attention seek us without entertaining apprehension and often a rather limited confi-



dence. In the first contact with his patient the dentist should recognize his opportunity to strengthen this confidence and dispel distress. He is to direct the thought as well as the movements of his patient; and to dominate and inspire, to give life and courage. Falling short of this the vantage-ground is yielded and difficulties are multiplied. It would seem absurd to claim that the laws of temperament are to be ignored in attempting to characterize a desirable attitude to be maintained by the dentist toward his patient, or to assume that because a man is a dentist he should therefore be a past-master in the art of psychic influence and suggestion. No such extravagant assertion is made, but I do insist that because a man is a dentist and success comes through these avenues, it therefore behooves him to become a student of these methods.

Lyman Abbott has said, "We are all engaged in either giving life to others or draining life from others. The parent gives life to his children, the teacher to his pupils, the minister to his people, the true statesman to his constituency. The real exchange is not in material things but in life. This capacity to give life makes the true leader. All great men are life-givers, no others are truly great." Dignity, sympathy, real interest should characterize the bearing and conduct of the operator from the start. Assurances of protection, avoidance of pain and briefness of attention will restore confidence; then attend to the mental condition; the guidance of the thought into such paths as lead to equanimity and away from morbid broodings and apprehension. As physicians this is our plain duty. We remember that mental disturbances may make the mother's milk a poison to her child; mental excitement is a common cause of indigestion; mental depression includes bowel disorders and renders the subject more liable to succumb to disease; the secretions are changed and perverted by mental impressions; therefore at the start we are to banish the scarecrow and place the patient at rest because his mind is at ease.

The employment of labor in its legitimate sphere is a presumption of the existence of confidence between employer and employed. This is the foundation on which are built the exchanges of life, and it is a prerequisite in any engagement between dentist and patient that confidence shall be entertained by the latter. Despised service is never to be rendered by those who wear our badge. On the contrary, there is abundant reason why a confidence farther-reaching

should characterize those who seek our aid. The utter helplessness and ignorance of the subject, his entire dependence on the operator, and the great benefit to be derived from the skillful performance of the work—all contribute to establish relations of confidence and esteem. Let us therefore recognize the sacredness of our position and cease to regard the work in any commercial light. Meet this confidence with commensurate and alleviating skill and attention which are the result of a careful study and experimentation of the best means to be obtained in the practice of painless dentistry.

Means to this end of a material character have been so much discussed that I shall content myself with a description of some applications with which I have been particularly successful. I have indicated that suggestion is a useful agent; in many cases I have especially found it helpful with subjects inclined to be hysterical, if used in conjunction with preadministration of valerianated ammonia, Hoffman's anodyne, or a generous portion of Madeira wine. I scarcely think the dentist justified in resorting to the graver condition of hypnotism, certainly not without the full consent of patients and their sponsors.

By way of preliminary treatment, I have found most useful the suggestion of the late Dr. Frank Abbott; namely, the frequent and protracted use of a solution of bicarbonate of soda as a mouth-wash. When proximate cavities are to be treated and cotton is first inserted for purposes of separation, these cavities, if not deep seated, are lined with oxychlorid of zinc, being careful to remove as much of the debris or disintegrated dentin as can be done without giving discomfort. The use of rubber for producing separation is entirely too painful and should not be indulged in. A very thin strip worn for a few hours and replaced by linen tape or cotton is not usually open to this objection. In deep cavities oil of cloves or eugenol, mixed in paste with oxid of zinc, is substituted for oxychlorid.

When these cavities are to be operated upon vapocain has been found helpful. When this fails cataphoresis is resorted to and cocaine used. I have never seen any evidence of injury to the pulp by the use of cataphoresis or cocaine. I have never used this method in proximate exposures of that organ; obtundents in such cases are often harmful and more conservative treatment is indicated. Instead, I would first remove as much of the disintegrated structure as practicable and apply eugenol or oil of cloves as above described;

place over this a concave cap of metal; fill the cavity with temporary stopping, and repeat in a week the effort to excavate. If successful, cap with eugenol and oxid of zinc, using again the piece of concave metal to prevent pressure, and fill the cavity with oxyphosphate cement.

I listened with incredulity some years since to a paper by Dr. B. F. Arrington, in which he advocated as a painless procedure excavations under a stream of cold water, but my confidence in the man prompted me to try his methods. In cervico-labial cavities I now frequently use it with much success, excavating while a stream of cold, often iced, water is directed from a very fine-nozzled syringe upon the cavity. I apprehend that the shock of the cold produces the same bloodless condition which follows excision of a tooth at the neck, when, as we all know, live pulps may be removed painlessly. If the patient be informed previously, this shock is a trifling matter and is much preferred to the dreaded pain of excavation without it. Of course this plan cannot be used in deep-seated cavities without pain and injury.

Experiments with the cold suggested by Dr. Arrington caused me to cast about for some way to make use of the intense cold of liquid air. Upon consulting Prof. Wm. Simon of Baltimore he suggested that liquid carbon dioxid and liquid nitrous oxid should give cold sufficient to produce pronounced impression. Under his direction I arranged my cylinder of carbon dioxid higher than the chair and upside down, so that the liquid might flow through the tube arranged to conduct it to the desired point. I found in a number of cervical cavities, where sensation was so marked that the slightest contact of the explorer was very painful, that the momentary application of the carbon dioxid gave entire anesthesia, and that the duration of this anesthesia was sufficient in most cases to permit of excavation. It was necessary to isolate the tooth with rubber-dam, and in some instances, where cervical exposure existed, resulting from elongation or loss of gingival structure, to protect that part by a covering of pink gutta-percha. The first experiments with the gas were not so successful, partly because of the crudeness of the apparatus and the lack of experience in application. Pain was produced whenever the application was continued for more than a moment, or whenever a tooth, which had been previously susceptible to shocks from changes of temperature, was in-

cluded in the area of application. A few experiments conclusively demonstrated that in these liquid gases we have agents which, while not having a universal or possibly not even a wide range of usefulness, ought yet to be almost indispensable in a certain class of cervical cavities. The success met with gives hope to the suggestion of the use of liquid air for obtunding sensitiveness in almost any cavity in which the pulp is not approximately exposed. The attempt to apply carbon dioxid to cavities in the molar teeth was productive of some embarrassment, because of the volume of gas which was liberated. The regulation of the amount was difficult with the improvised apparatus, and the difficulty increased by the necessity of having the gas as nearly liquid as possible in order to produce a profound shock over a limited area.

In removal of the pulp my recent procedure has been to expose it under the influence of cocain cataphorically applied and extract it after impressing cocain. This impression is accomplished by applying spunk saturated with aqueous solution, and exerting gentle pressure until thorough and complete anesthesia supervenes. Dr. W. C. Wilbur of Corning, N. Y., has recently reported to me a number of cases where he has used a saturated solution of cocain in chloroform. A trial in a number of cases was absolutely successful in my hands, and I have no hesitancy in believing that chloroform increases the effectiveness of cocain.

The extraction of teeth and opening of abscesses should be done under nitrous oxid gas; but where there is any objection to this agent, injections of cocain are effective in relieving pain. If the reverse end of a match be dipped in a saturated solution of carbolic acid and cocain and applied prior to the injection, with gradually increasing pressure at the point of gum where the needle is to be inserted, it will render that operation painless.

Where teeth containing putrescent pulps involved with pericemental inflammation and great tenderness are to be drilled into, local injections are helpful. The tooth, however, must be braced, either with a clamp, or modeling composition formed about it. After the compound is formed about the neck of the tooth to be drilled and chilled, it can be held in place so as to support the latter and prevent the pressure from causing pain.

The most effective assistance to any special means employed for relieving sensation is sharp instruments and burs. The latter

should never be allowed to revolve as a saw is used in cutting wood, but used in a dipping motion, a touch and go movement. In polishing a stream of compressed air directed upon the filling will prevent heating,

A word as to length of sitting—these should usually be of short duration. A dental chair should not be the place to test the endurance of those who occupy it. If extensive contour work is to be done, requiring sittings of an hour or an hour and a half, they should not occur oftener than once a week, though I can see no reason why the long sittings should not be alternated by short ones. I have in mind histories of collapse, nervous prostration and typhoid fever, following protracted dental operations; and I have received of late several requests from physicians, who referred new patients to me, requesting that the sittings should not extend over half an hour each. One of these physicians has related some very interesting cases which he attributed to the distress and loss of nervous force produced by painful and extended dental operations.

I am fully aware that for many if not most of our patients these recommendations are superfluous; but I believe even in the handling of these it will pay to cultivate an increasing gentleness, a refinement of touch and attention, which let me hope will dispel entirely the old-time dread of the dental office.

Discussion. *Dr. G. A. Maxfield*, Holyoke: Dr. Smith has touched upon a very vital point in our practice. The success which the numerous dental parlors have in attracting victims shows that people nowadays are looking for painless dentistry. The community is taught to believe in advance that pain and the dental chair are linked together. This is especially the case with children, and the parents are largely responsible for the fear. Even if you do not hurt the patient, he or she will carry the previous impression after the operation and will imagine that pain has been experienced.

If all pulps were in their proper positions in the teeth there might not be much danger in the use of liquid air, but how often do we see a very shallow cavity and yet an exposed pulp. I have removed pulps with the aid of cocain for many years, injecting it with a syringe, and also saturating cotton and pressing it down onto the pulp, which latter method is preferable. There are certain conditions, however, where cocain has no effect at all on the pulp. A

combination of chloroform and any suitable medicine will penetrate the tissues and accomplish the desired effect more quickly than any other solution.

*Dr. L. C. Taylor*, Hartford, Conn.: In my opinion hypnotic suggestions carry great weight. When you say to a patient, "That hurts you, does it?" he replies, "Yes, it does." But if you take another instrument exactly similar to the first one and do the same thing with it, and ask, "That does not hurt you, does it?" the patient will reply, "No, that is a great deal better." When your patient is leaving the office say to him, "You have not been hurt much to-day, have you?" and he will answer, "No, I have not." Furthermore, that patient will in all probability speak a good word for you within twenty-four hours, but if you do not follow out these little suggestions the opposite may occur.

### UNIFICATION OF LAWS.

BY JOHN F. DOWSLEY, D.D.S., BOSTON. READ BEFORE THE NORTHEASTERN DENTAL ASSOCIATION, AT HOLYOKE, OCT. 17-19, 1899.

The end of our century is of all things progressive. We are swept along on the wave of public spirit and public necessity, which demands an advance in all education, and the dentist of the future must be an educated man as well as a proficient practitioner. To insure this I believe there is need of a higher standard of qualification before entering upon the study of dentistry, and the best way to bring this about is to make the entrance examination for our colleges one that would require at least the academic training of a high school graduate. Throughout the country an almost universal desire for unification of dental laws and interstate recognition of licenses is felt, and while it may not be possible to attain the same high standards in every state at once, it is plainly in evidence that there are at this time several states whose requirements are so high that it would warrant their being the nucleus for a beginning of interchange of certificates. There is, however, in the state boards throughout the country great differences not only in the legal standards required, but great disparity in the manner of ascertaining the status of the candidate with regard to professional fitness, and these conditions antagonize any attempt at interchange of certificates at present. Until some plan for uniform standards be adopted any interchange would be grossly unjust.

It must be obvious to even a casual observer that this will not be an easy matter to adjudicate. Boards demand high standards of the colleges, and in return it is only the right of these same colleges, of the profession, of the people, and especially of those who meet the higher educational requirements, that the boards should stand on the same high plane of excellence, and that no man should enter the profession of dentistry excepting through a dental college of high standing. Until boards are willing to adopt the sort of uniformity which they demand from colleges I can see no way in which our methods of ascertaining fitness of candidates may be fair and equal; nor any scheme of reciprocity in exchange of certificates. Let me repeat, and in my opinion it cannot be said too often, if the various examining boards demand a high and as nearly as possible a uniform standard of qualification for practitioners of dentistry, and in so far as practicable uniformity of legislation, I believe the ultimate result will be to secure a safe, judicious and fair exchange of certificates by examination from one state board to another; and this is the only way it can be done.

Until recently each county in Massachusetts held its individual examination for the bar, and Suffolk County was notably more difficult than some others. It became the custom for law students, who did not feel competent to pass that examination, to go to some county where the examination was easy, obtain a license to practice, and return to Suffolk County to open an office. As a matter of fact it was this abuse which led to the establishment of a state board to regulate the practice of law. What would prevent the incompetent dentist from doing likewise? Therefore I say again, an effort must be made for uniformity in legislation and standards throughout the country.

Dr. Ottolengui a short time since submitted these two plans to the various state boards for consideration. The first was, "That applicants for licenses should be required to present the papers upon which they were examined at college when obtaining their diplomas. The state board upon being satisfied with these original examination papers that the applicant is worthy, to give him a license to practice; and secondly to accept a license of this character granted in similar manner by any other state." His second plan: "For all state boards, members of the National Association of Dental Examiners, to make use of identical examination papers, the same

being prepared by a committee of the national body; licenses granted upon such examination papers to be interchangeable among the states represented in the National Association." My reply to these two propositions was that neither was practical nor feasible. The first, because experience has taught us that many graduates of reputable colleges fail to pass our examination; the second, because it seems to me dangerous to concentrate so much power in a few individuals.

If the idea which was inaugurated two years ago when the New England boards formed an association shall be adopted throughout the country, viz., examine every one—graduate and nongraduate—have the standard high, both theoretically and practically, especially the latter, I believe we will have solved the problem. Until this is done unification of laws and interchange of certificates can never be accomplished.

Discussion. *Dr. J. Searle Hurlbut*, Springfield: Unification of laws seems difficult of accomplishment. A chain is no stronger than its weakest link, and this is applicable to the state boards. The young man studying dentistry will search out the state where the easiest examination is held, and will then pass his examination there. He will act on the same principle as applicants for divorces did a few years ago, when they went to Chicago to obtain same. When Illinois stiffened up the laws the applicants went elsewhere. The state which allowed a candidate to pass with the least examination would have an immense amount of work to do.

It would be easier for us in Massachusetts if we could recognize a diploma as many other states do, but under our law every man is examined even though he has been practicing in another state for years, and this is the proper course. It seems hard that a man cannot move from one state to another without passing an examination, but such ruling is for the betterment of our profession.

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## PORCELAIN.

By A. M. ROSS, D.D.S., SPRINGFIELD, MASS.

A very familiar substance to most people is clay, and its value and many of its uses are known by every school boy who has done any modeling. Its hardness when dry and its tenacity when wet are appreciated by many a farmer's boy to his sorrow and disgust. By both of these boys it is known, for example, that a cube of clay



deprived of its hygroscopic water by the heat of the sun may be successfully used in building in countries having little or no rain. Such a cube exposed to fire loses the water of chemical combination also, and it thereafter will absorb no water chemically, though it will absorb water mechanically, proportionate to the porosity of the mass, unless the surface is glazed.

Every one is familiar with the appearance of an ordinary brick, but few people, however, may notice the difference between it and a hard-baked one out of the same kiln, excepting that of color. There are other differences: size and density. It being smaller, the blue brick gives evidence of greater shrinkage and density.

China clay, *stigilla pura*, which is a pure silicate of alumina, is the base of the subject of this sketch. As in brick-making and pottery, so is it in porcelain-making—there is a process shrinking, and "*the contraction of the mass in firing is equal in all directions.*" This fact deserves careful consideration in making inlays, as it shows the importance of beginning the work by placing a small amount of body first at the base, and proceeding from that point in order to avoid distorting the matrix.

As to porcelain bodies, there may be made a comparison between the low-fusing products and an ordinary, easily-abraded brick in which there is greater porosity than in the hard-baked brick (that of itself compares with the products of higher fusing bodies), as there is in the one more of the water of chemical combination than in the other. If the low-fusing porcelain is more porous than the other, the more dense material is as indispensable for inlays as it is for other work, because the test of time will show, as it has already, slight changes of color. And I think that if platinum could be as easily adapted for matrices as is gold, there would be no recognition to-day of low-fusing bodies, just as there is now no recognition of vitrified bodies. This, then, is proof that the best material for matrices is not yet recognized.

If worthy men protest against the indiscriminate use of gold crowns, and object to the needless practice of approaching proximate decay in the anterior teeth from the labial surfaces, why should they not also strenuously object to this deep slicing away of teeth in order to stick on knife-edged slabs of porous porcelain with imperfect cements? If the perfect matrix material is not yet found, neither is the cement perfected, and regarding the porcelain itself

the question is still open as to degrees of translucency because of certain color values of cements yet to be perfected.

It is therefore certain that the whole subject and process are yet in the experimental stage. It ought to be necessary only to look at recent history in dentistry in witness of the fearful slaughter of teeth in the interests of the Klondike, to justify every one in hoisting cautionary signals regarding inlay work, and to make an appeal for conservatism.

Inlay work is bound to be a good thing, but at the best it will have its limitations of application and usefulness, and as to the permanence of such work, no one ought to contend that with knife-edge margins it will stand on occlusal surfaces under great stress, yet that is the kind of margin the inlay must present in proximating large cavities in the incisors to the normal occlusion of the six anterior lower teeth. Where cavities may be made reasonably deep, and, as in labial cavities and others that may be directly approached, it is possible to make the angles of margins fairly acute, and the inlay will have no knife-edges to break down.

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## EXTENSIVE IRRITATION FROM A MALPOSED ROOT.

BY C. M. BALDWIN, D.D.S., CHICAGO.

In July the following case appeared at the South Central Charity Dental Clinic. The patient was a woman, thirty-three years old, had been married when sixteen, had borne seven healthy children, and never had a miscarriage. When a girl she was treated for tuberculosis, and made a complete recovery, though six brothers and sisters died of the disease. In addition to her home duties she had washed and scrubbed for others, consequently was somewhat emaciated and aged much beyond her years.

In November, 1896, a red spot was noticed on the left cheek opposite the lower first bicuspid. Her fears were aroused and she went to the free dispensaries of two of the largest medical schools. In describing the case to the students one of the physicians called it a cancer, saying that an operation would be necessary to remove it, and that the necrosed bone would have to be scraped. The patient inquired if that would not leave a bad scar, and the doctor said there would be one anyway. One doctor referred her to one of the dental schools, saying that her's was a very bad case, which should be treated by a dentist. With the exception of occasional sharp

shooting pains along the inferior maxillary nerve she experienced but little annoyance, and when an appointment was made for the operation she did not present, but postponed it as long as possible.

Two years later she came to the Charity Dental Clinic. She said that the condition was much worse in every way. The inflamed area had spread until it was almost two inches in diameter, circular in form, slightly swollen, of a dull red color, and the surface was uneven like that of a cauliflower, having a fissure in the center about three-fourths of an inch long and one-sixteenth deep, the edges almost meeting and covered with broken-down epithelial cells, presenting a caseous appearance. During the last two weeks a gradually increasing numbness in the part appeared, so that there was sufficient anesthesia to allow of considerable pressure without any pain, except in the center.

The mouth was in a terrible condition, tartar and fermenting debris covering the teeth and numerous roots. The upper right second bicuspid was the only tooth missing, but the cuspids and incisors were the only sound teeth in the lower jaw. The lower right second molar was badly decayed, while only the roots remained of the first molar and both bicuspids. Only the roots were left of the molars and bicuspids on the lower left side. The lower left first bicuspid was partially displaced. The cervical portion remained in place, while the apex was deeply imbedded in the sub-mucous tissues, pointing directly towards the center of the inflamed area upon the cheek, at an angle of forty-five degrees. The soft tissues over the middle third of the root were severed as if by a knife, and the external plate of the alveolar process had been destroyed by the abscess, leaving this portion of the root exposed to view—white as bleached bone. The upper third of the root was firmly held by the alveolar process.

The patient reported having had numerous abscesses from the different roots, and was quite certain that this root was abscessed before her marriage, over seventeen years ago. When the pus pocket became filled she applied a fig to evacuate it, and claimed to have repeated this over one hundred times for this one root. When I saw the case there was no pus present. There had never been any attempt made to remove the root, neither before she went to the medical schools nor by any one there. At neither school would they extract the root unless she remained in the hospital over night.

Since nature moves along the line of least resistance, doubtless as the alveolar process became weakened and broken down the force of masticating upon these roots, the downward and lateral pressure exerted, tipped this root into the position in which I found it. The patient said the root had been in that position for many years. While we frequently find third molars erupting having their occlusal surfaces directed mesially or buccally, it is very improbable that this tooth erupted as found, but rather that it became displaced soon after the process was destroyed.

I thought the entire trouble with the cheek had been caused by the mechanical irritation of the root, and decided upon its immediate removal. The abscess had destroyed the alveolar process and the soft tissues covering it, but was not directly responsible for the condition of the cheek. When the trouble started she had been pregnant for some months, hence more liable to succumb to any destructive process; and when the irritation was greatest there was no pus about apex of root. After pressing the soft tissues away an elevator was placed under the free end of root, raising it until the weakened process released its hold, altogether making a very simple operation. The patient went home immediately and felt no unfavorable effects at any time following the extraction. She was directed to report in less than forty-eight hours, but I did not see her again for about four weeks, when almost all effects of the abscess and root had disappeared. The active irritant being removed nature needed but little assistance to complete the cure. Six weeks after the root had been removed the parts were healed, but slight redness remained, all soreness and pain had disappeared, and the sensory nerves were normally responsive.

The neglect and physical condition of the patient seemingly would have favored the development of epithelioma under such conditions, for while she was but thirty-three, she appeared to be past forty. This heavily burdened woman had been weighted down with the prospects of an operation for the removal of a cancer and necrosed bone. The dread of such a formidable ordeal was sufficient to cause her to postpone it indefinitely, as the pain most of the time was not great, but how great a relief it would have been, mentally and physically, and how gladly would she have had the root extracted years before, had she been instructed as to the dangers possible from the retention of such teeth. The charity dental

clinics may do much good to the ignorant and poor classes, by *enlightening* them, as well as by affording relief from their sufferings.

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## PROPHYLACTIC TREATMENT OF TEETH BY PATIENTS WITH FLOSS SILK AND LACTATE OF SILVER.

BY EDWARD S. NILES, D.D.S., BOSTON READ BEFORE THE NORTH-  
EASTERN DENTAL ASSOCIATION, AT HOLYOKE, OCT. 17-19, 1899

There is in general use among dentists an antiseptic well recognized as a preventive of decay, namely, nitrate of silver. Probably everyone here has used this agent for superficial decay in some cavities of permanent and deciduous teeth. The great objection to it, however, is discoloration.

For some years I have been searching for a preparation which could be used daily in the care of the teeth, and have discovered a practical antiseptic in lactate of silver. This is not so strong as the nitrate, and possesses in a somewhat less degree the same antiseptic properties. It also turns dark when exposed to the light. This is overcome by exposure to the sunlight until it will not darken any longer. A small quantity of tincture of orris root will conceal the metallic taste which accompanies silver salts.

I procure common floss silk, waxed, in hanks from the manufacturers, and have the spools come separately; then macerate in the above named solution, 3 per cent., for two weeks, and afterwards expose it to the sunlight for a day, which turns the white silk dark and to some extent decomposes the solution on the silk, but leaves an antiseptic property on the silk of about one per cent. The silk thus prepared will not turn the teeth dark to any perceptible extent, as the dark color has already been developed by the sunlight.

Floss silk thus prepared is perfectly safe for the daily use of patients. It is readily seen that in passing this silk between the teeth, where the brush will not reach, they are not only mechanically cleaned, but a force is left there which is recognized as especially antiseptic for the existing evils preceding actual decay. Patients who for fifteen years or more have had a recurring white decay around the cervical walls have found relief during the past two years in the use of this prepared floss, the white decay having entirely disappeared. I therefore feel safe in asserting that decay between the teeth can be successfully treated by this method.

I am not responsible for the medicated silk offered for sale by silk manufacturers, though the preparation for treating the silk and the idea was taken from me. Those who do not wish to prepare the silk in their own offices can procure it of the Dental Protective Supply Company, or from me direct.

**PAPILLOMA OF THE TONGUE.**—J. Grant Andrews reports a case in which many features suggested carcinomatous change. After removal there was a recurrence in the submaxillary lymphatic glands.—*Edinburgh Med. Jour.*

**GROWTH OF THE HAIR.**—J. Pohl, *Dermatologisches Centralblatt*. The hair was cut close to the head in small patches on several persons and the growth carefully measured. The first point noted was that cutting the hair checks its growth for a month, after which it returns to normal. The average rate of growth in a month was 10 to 18.5 mm. in boys 11 to 17 years of age; 15 mm. in the writer, between his twenty-first to twenty-fourth year, 11 mm. at 60. In five insane patients the rate of growth was less: 7, 8, 9 and 12 mm. a month. The curious fact was established that each two to four hairs form a group more closely connected than the rest, and that one hair of this group grows more rapidly than the rest for a while and then stops, when its neighbor assumes a more rapid growth for a while and then stops, the next continuing the rate, and so on until the turn falls again to the first hair; also that hairs have a typical length of life, after which they fall out, and this occurs in a group in the same alternate manner as the growth progresses. These phenomena were noted in the hairs on the back of the fingers as well as on the head. The typical length of a hair is twenty to forty inches, and its life two to six years. The highest rate of growth occurs in the middle of this allotted span. Fever checks it.—*Jour. A. M. A.*

**ETHEL BROMID AS AN ANESTHETIC.**—In the *Maryland Med. Jour.* Dr. J. E. Kempter recommends ethyl bromid as a general anesthetic in short operations. Its advantage is its rapid action, and it is particularly well adapted for children. It is dangerous when used like chloroform—that is, with an admixture of atmospheric air, or when the administration is protracted. Dr. Kempter gives it in the following way: A crash towel is folded into the shape of an "air-tight" cone and rendered impervious by a layer of paper, the base of the cone being sufficiently wide to cover both nose and mouth. The amount of ethyl bromid varies from one to two and a half drams for children, and from two to three drams for adults. The full dose is poured into the inhaler, which is immediately held down firmly over the patient's nose and mouth and not removed until full anesthesia is induced and all struggling ceases. The patient sometimes struggles violently, and to the uninitiated appears to be in danger of asphyxia, but the cone must not be removed, for in no other way can rapid and safe anesthesia be obtained by ethyl bromid. Generally speaking, one minute will suffice to induce deep narcosis. The patient awakes suddenly, as if from a natural sleep. Dr. Kempter says that under no circumstances should the inhaler be removed for the purpose of prolonging the anesthesia.

## **Digests.**

**UNDERCUT MODELS.** By Dr. L. P. Haskell, Hinsdale, Ill. Prepare the model as for any case, always flaring the sides so that it will drop readily from the mould and shellac. Oil as far as the undercut extends, set upon a glass slab or other smooth surface; mix plaster and coarse short fiber asbestos, equal parts, not too thin, and spread upon the undercut surface about one-quarter inch thick at the base, and half as thick at the top of model; when hard trim smooth, and trim the ends at a bevel so it can be easily replaced in the mould, dry thoroughly and mould; it and the model drop out readily; replace the core in the mould and cast the die. The process is simple and effective.

Oiled sand is of great advantage to the dentist who desires to expedite his work, as it is always ready for use, but cannot be used with zinc, as it is poured so hot it burns the oil, but there is no necessity for using zinc, as a proper babbitt metal is far preferable, being the only alloy that has all the requisite qualities for dental dies, and produces the most satisfactory results, as demonstrated by nearly fifty years' use, after several years' use of zinc.—*Items, Feb. 1900.*

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**THE KENTUCKIAN'S WOES.** Man born in the wilds of Kentucky is of few days and of easy virtue.—He fisheth, fiddlETH, fusseth and fighteth all the days of his life.—He shunneth water as a mad dog, and drinketh much whisky.—When he desires to raise hell he planteth a neighbor, and lo, he reapeth twenty fold.—He raiseth even from the cradle to seek the scalp of his grandsire's enemy, and bringeth home in his carcass the ammunition of his neighbor's father-in-law, who avenged the deed.—Yea, verily, his life is uncertain, and he knoweth not the hour when he may be jarred hence.—He goeth forth on a journey half shot and returns on a shutter shot.—He raiseth in the night to let the cat out, and it taketh nine doctors three days to pick the buckshot from his person.—He goeth forth in joy and gladness, and cometh back in scraps and fragments.—He calleth his fellow-man a liar, and getteth himself filled with scrap-iron, even to the fourth generation.—A cyclone bloweth him into the bosom of his neighbor's wife, and his neighbor's wife's husband bloweth him into the bosom of Father Abraham

before he hath time to explain.—He emptyeth a demijohn into himself and a shot-gun into his enemy, and his enemy's son lieth in wait and lo, the coroner ploweth up a forty acre field to bury the remains of that man.—Woe, woe, is Kentucky.—*Ed. Med. Mirror.*

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**IMPACTED TOOTH-GERM THE RESULT OF A TRAUMATISM.** By Alfred E. Blake, D.D.S., San Francisco. Harry H., age eight years, was referred to the writer for treatment of an enlargement in the upper jaw, which had been diagnosed as a malignant growth. Examination showed a tumor the size of a hickory nut, ovoidal in shape and occupying the right myrtiform fossa. The upper lip was distended and the alæ of nose broadened. The parents stated that three years previous the boy had had a fall, knocking out the upper deciduous centrals and right deciduous lateral. The parts healed readily, and in due course of time the permanent centrals appeared. As time advanced the right central incisor protruded more and more from this tumor, causing a noticeable deformity. The tumor was more extramaxillary than intramaxillary, firm on pressure, showing entire absence of pain, and the gum covering swelling appeared perfectly normal.

*Treatment.*—The right central incisor was extracted and crucial incisions were made into the tumor; several septi of bone were broken up and a red jelly-like mass was curetted out, exposing the undeveloped lateral incisor in an abnormal and transverse position. The tooth was removed and cavity packed with gauze for twenty-four hours to control the slight hemorrhage. On removing gauze the flaps fell naturally into cavity. No inflammation developing, patient was dismissed in one week.—*Pacific D. Gaz., March.*

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**NASAL DRAINAGE FOR EMPYEMA OF ANTRUM.** Roaldes (*N. Y. Med. Jour.*, Jan. 6, 1900) reports five cases of antrum operation cured by what he terms the Caldwell-Luc method, one having for its essential principles the cleansing and curetting of the cavity through a large opening in its anterior wall, and the subsequent drainage through a large opening into the nasal passage.

The technique of the operation was carried out as follows: The patient having been chloroformed, the inferior turbinate body of the affected side was attacked with a cutting forceps and its anterior third removed, after which the nasal fossa was firmly packed with



gauze and attention turned to the opening of the antral cavity through the cuspid fossa. The upper lip being everted and well retracted by an assistant, the incision was made through the soft parts, beginning just below the gingivo-labial fold near the frenum anteriorly and extending posteriorly in a horizontal direction back to the root of first molar. The periosteum was included in the incision, and both flaps were detached from the bone and retracted so that the bony anterior wall was laid bare. A chisel was then used to make an opening into the cavity at the deepest point in the cuspid fossa, and by means of bone-forceps this opening was enlarged so that the finger could readily be introduced and extended anteriorly almost to the nasal process of the maxilla. This gave free access to the cavity for the introduction of instruments and inspection with the eye and finger. The antrum was found to be lined within by a thick growth of polypoid tissue that almost obliterated its cavity. Quite a free hemorrhage occurred at the stage where the antrum was opened, and this tissue was attacked with a curet; but firm pressure by means of a gauze pack quickly checked the flow, and the scraping was systematically continued until the cavity had been deprived of all its interior lining and nothing remained except the bare bony walls. This done, a temporary gauze pack was introduced into the cavity, and the drainage-way into the nose was established as follows: The pack being removed from the nose, the finger was introduced and placed upon that part of the antral wall corresponding to the resected part of the turbinate. With this as a guide, a chisel was placed upon the corresponding point on the side of the cavity and used to break away a part of the bony wall, the opening being made sufficiently large to permit of the free passage of the finger. Any remaining shreds of mucous membrane left on the nasal side were cut away with a biting forceps, so that the artificial hiatus thus made would be in nowise obstructed.

It only remained now to suture over the wound made in the cuspid fossa and cut off all communication from the mouth. With the lips well retracted and a properly curved strong needle employed, no very great difficulty was experienced in carrying out this step of the procedure. Rather fine catgut was employed in interrupted suture, the mucous membrane and the periosteum being caught up together and brought into firm apposition over the breach in the

bony wall. Before the cavity was finally closed, however, the gauze packing was removed, iodoform powder insufflated, and a fresh strip introduced through the nose, so as to avoid any difficulty in its removal at the first dressing a few days later. The dressing was renewed on the fifth day and the cavity irrigated with warm boric solution. The buccal wound had healed by first intention. The patient remained in the hospital twelve days, at the end of which time she was allowed to go out and resume her usual vocation, being instructed to return to the morning clinics for further treatment. At the end of a few days the gauze dressings were discontinued and the patient was taught to introduce a cannula through the nasal opening and wash out the cavity twice daily. This she did conscientiously, and at the end of six weeks all discharge had ceased, the injected solutions coming out clear, and the empyema was pronounced cured.

Luc has operated upon thirty-three cases by this method, all of whom, except one, recovered without relapse.

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**PATHOGENIC YEAST-FUNGUS FOUND IN THE ORAL CAVITY.** By W. D. Miller, D.D.S., M.D., Berlin, Germany. I wish to present a series of observations which I made some five years ago concerning a pathogenic yeast-fungus of the oral cavity. Untoward circumstances at the time interrupted the course of the experiments, which it has since then unfortunately been impossible to resume, for the reason that the cultures of the fungus in question had died in the meantime, and new cultures could not be procured. Although the work was for this reason not completed, it nevertheless led to some results which seem worthy of notice.

While making repeated tests of the secretions of the mouth by means of pure cultures, I frequently observed on the culture-plates large gray or yellowish to snow-white colonies, which on microscopical examination were recognized as colonies of yeast-fungi. A number of times I met with the same result in the case of diseased tooth-pulps; but I attached no particular importance to this observation until in cultures from two different pulps so many of these colonies appeared upon the plates that I was induced to investigate the matter more closely. The cultures, as well as the inoculations, gave results leaving but little doubt as to the fungus in question being closely related to if not identical with the Thrush

fungus, *Saccharomyces albicans*. It might therefore appear superfluous to dwell any longer upon this observation, the numerous investigations of late years having pretty thoroughly solved the questions regarding the biology of the fungus under consideration. Nevertheless, my experiments have brought out a number of points which will be of interest to bacteriologists as well as to dental pathologists.

In the first place the presence of yeast-fungi in suppurative processes could not fail to attract attention, as it was formerly generally supposed that this group of fungi—and in particular *Saccharomyces albicans*—was incapable of causing suppuration. The pure cultures in question again clearly testify (as has been claimed for *Saccharomyces albicans*) that a specific yeast-fungus may under certain circumstances develop forms which are liable to lead the observer into mistaking it for a mold-fungus.

In pure cultures on agar this fungus grows on the surface in large, snow-white moist colonies, which as they become older show a jagged edge; whereas under the surface the colonies with their numerous offshoots often present a certain resemblance to miniature bugs. In tube cultures it either grows in a granular form, without any peculiar characteristics, or it develops very fine, thread-like processes around the line of puncture, very similar to the *Wurzel bacillus*. On gelatin it grows well without producing liquefaction.

Rather remarkable growths are produced when in line cultures on glycerol-agar or gelatin the air is excluded by means of large cover-glasses. Especially those colonies near the border of the glass throw out numerous offshoots, which, by divisions and ramifications, produce very graceful figures. In gelatin cultures I have observed that these ramifications were all directed toward the border of the cover-glass.

Cover-glass preparations of such colonies showed diverse forms—round, oval, cylindrical, as well as such that had developed into long threads. In bouillon cultures only specific yeast-fungus cells were to be found. A two-days' old culture on potatoes showed round and oval forms, with numerous buds; after five days a number of cylindrical cells had developed, many of them showing granular degeneration, as was also the case in older cultures on agar. In cultures on bread I found only oval and cylindrical forms.

A watery emulsion subcutaneously injected into a mouse caused

death in forty-eight hours. There was no noteworthy reaction at the point of infection, nor were there any fungus-cells to be found in the blood, whereas there was a pronounced colonization in the kidneys and in the liver, as well as several nodules in the lungs. In the kidneys the colonies, especially directly beneath the capsule, were so numerous that these organs appeared literally studded with small white specks. The microscopical examination showed—in those parts where a stronger accumulation of fungi had taken place—necrosis of the epithelium of the urinary canals and their obstruction by a homogeneous matter, as well as a cellular infiltration of the interstitial tissue.

A second mouse, also subcutaneously injected, showed decided symptoms of a general infection for two days, but then recovered and was killed on the fifth day. A small abscess was found in the wall of the left ureter, in which yeast-fungi were present in considerable numbers. A third mouse presented the same symptoms. On the sixth day a bean-sized abscess was discovered at the point where the injection had been made, containing numerous round and elliptical yeast-fungus cells. The microscopical examination of the pus revealed the presence of only yeast-cells. Cultures on agar also developed only yeast-fungi. In a fourth mouse, infected in the same way, a pronounced fibrinous exudation was produced at the point of infection, but there was no suppuration.

We conclude from these observations that the questionable yeast-fungus not only possesses invasive qualities, but, under certain circumstances, brings about suppurative processes. Similar conclusions were arrived at by Busse in the study of a yeast-fungus, designated by him as *Saccharomyces hominis*.—*Cosmos*, Feb. 1900.

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**ARTICULATION.** By Dr. G. B. Snow, Buffalo. Read before Union Meeting at Rochester, Oct. 25, 1899. The teeth, and the jaws into which they are inserted, may be considered as a mechanism intended for the comminution of food, which is thus put into condition to be more easily acted upon by the fluids of the stomach and digested. The teeth are attached to the jaws by means of the alveoli, and are brought into contact as the mandible approaches the maxillæ; and substances suitable for food, when placed between them, are crushed by the operation of the masseter and temporal muscles, thus performing the function known as mastication.

To obtain a clear idea of the manner in which this function is performed, it will be necessary to consider the form of the mandible, the character of its joints, the different movements of which it is capable, and the forms and disposition of the teeth by means of which the function is more directly performed. The mandible consists of a U-shaped body, a ramus rising obliquely on either side, terminating with the coronoid process in front and the condyle at the rear; the latter articulating with the glenoid fossa of the temporal bone. Interposed between the condyle and the fossa is the interarticular cartilage; thin in its center, thick at its edges, more especially at the rear, with synovial sacs above and below. The lower sac allows the hinge-like movement of the mandible, while the upper one gives movement upon the eminentia articularis, and allows the cartilage and condyle to move directly forward. This movement is executed by the contraction of the external pterygoid muscle, which has its origin on the pterygoid plate of the sphenoid bone, and passes outward and backward to its insertion, partly in the neck of the condyle and partly in the edge of the interarticular cartilage. The cartilage, when applied to the condyle, has its upper surface nearly flat, so that the forward movement of the joint is in practically a straight line, diagonally forward and downward. As the prominence of the eminentia articularis varies in different individuals, and even to some extent at different sides of the same jaw, the amount of obliquity of the movement also varies.

The movements of the mandible are as follows: The direct, hinge-like movement, as when the mouth is opened. The movement of protrusion, when both of the external pterygoid muscles contract simultaneously, and the condyles, with the interarticular cartilages, are pulled forward upon the eminentia articularis. The lateral movement, when one of the condyles is brought forward, the other rotating in its socket, and the mandible is thrown to one side. Or by the alternate contraction of the external pterygoid muscles this movement may be made bilateral; in which case each condyle moves forward alternately, and is then retracted to its normal position, the mandible passing to and fro past the median line. This movement when compounded with the first constitutes the movement of mastication, the teeth being brought together with a lateral or grinding movement.

It is interesting to note that all species of animals do not possess

the lateral movement of the mandible. In the carnivora, the dog or cat for example, the condyles of the mandible are almost directly in line with the grinding surfaces of the teeth, and the movement is ginglymoid or hinge-like only. The herbivora, on the contrary, have well-developed rami and the condyles are set well above the teeth, and there is a very free lateral movement to the mandible.

The teeth are arranged in either jaw in the form of an arch; the incisors, cuspids and first bicuspid presenting a circular outline, the second bicuspid and molars running backward in diverging and nearly straight lines. The lower incisors are arranged on a smaller circle than the upper ones, and when the teeth are in contact they usually pass upward for a short distance behind the upper incisors, and are thus enabled to exert a shearing action in biting off morsels of food. This peculiarity is known as the "overbite" and is variable in extent. The bicuspid or two-pointed teeth come next to the cuspids, their cusps being quite long and sharp; and after them the molars or multicuspid, the length of the cusps of these teeth diminishing gradually from front to rear.

These peculiarities are to be noted when the teeth are brought together. The lower incisors being narrower than the upper, the lower bicuspid is about half a tooth in advance of the upper ones; the second lower bicuspid being central to the space between the upper bicuspid. The teeth of one jaw interlock with those of the other, their cusps being received into the sulci of the opposing teeth, or the interdental spaces. The articulating surfaces of the teeth form a curved line; convex in the upper jaw, concave in the lower; the curve sometimes rising quite rapidly at the rear. There appear to be two reasons for this arrangement. If the teeth were set in a horizontal plane the second and third molars, approaching each other at an angle of nearly  $45^{\circ}$ , would have too much of a sliding movement. They are accordingly set with their articulating faces in a curve, which enables them to meet more squarely; the rise of the curve at the rear bringing their faces more nearly to a right angle with the line of movement. Then, again, when the mandible is thrown to one side and the teeth are brought into contact the cusps do not rest in the sulci and the jaws are slightly separated. The condyle on the side from which the movement is made has moved forward upon the eminentia articularis and is consequently

somewhat depressed. The bicuspid on this side are thrown out of bearing, but the inclination of the faces of the molars enables them to touch; so that the bearing of the teeth will be on the bicuspid on the side toward which the mandible is thrown, and the molars on the side from which movement is made, which side moves forward as well as sidewise. The food is usually placed between the teeth on the side toward which the mandible moves, and is crushed by the returning sweep of the mandible. This arrangement of the teeth does not obtain in every case, but with the majority of well-arranged, well-developed natural dentures some of the teeth on both sides of the mouth will come into contact during the lateral swing of the mandible.

It is laid down as a rule that when the teeth have long cusps the incisors will have the more overbite, and the compensating curve, as it has been termed, will be greater. When the cusps are less prominent the overbite is less, the compensating curve is flatter, and the lateral movement of the mandible more free, as the eminentia articularis will in this case be less prominent.

What deductions can be made from the case, as above presented, relative to the articulation and arrangement of artificial dentures? In the first place, we must remember that the conditions existing when the natural teeth are in place are widely different from those which pertain to their artificial substitutes. In the one case the teeth are set in the alveoli, forming practically part of the jaws, while the substitutes have but slight attachment, the upper plates by adhesion, the lower generally by gravity alone; the latter being notoriously unstable. If we attempt the use of teeth with long cusps and long overbite we shall have conditions favoring the exertion of lateral forces upon the plates and they will be dislodged. The cusps of artificial teeth should therefore not be so long as those of the natural ones. The proportioning of the opposing sets is a matter of considerable importance. The upper and lower teeth should be of such width, relatively, that the bicuspid will come into their proper places and interlock, the same as in the typical natural organs. If they do not do this, and the cusps touch upon inclined surfaces, there will be a tendency to slide the plates upon the gums and they will be easily dislodged. The teeth must rest upon their opponents so that plates will be pressed directly home against the gums without developing any tendency to slide.

But how about their contact when the mandible moves sidewise in mastication? If the teeth are so arranged that they make contact only on one side at such a time, there will obviously be a tendency to tip and dislodge the plates. They must be arranged to copy nature, so that some of the teeth may be in contact on both sides of the mouth during all the masticatory movements; so that when the incisors meet edge to edge the molars will touch and prevent the dislodgment of the plates at the rear. When the side movement is made and the bicuspsids of one side touch, the molars of the other side should also touch. The plates, being held up at two or more points, cannot fall.

In setting up the teeth it is usual to first arrange the upper ten teeth in front, they being the most conspicuous; and there is the opportunity for the exercise of considerable taste in adapting them to their surroundings. If the incisors and cuspids are all set up alike, like the pickets in a fence, the effect will not be pleasing. The fact is that in sets of natural teeth there is an irregularity about their regularity. Each tooth has its peculiar way of standing in the set, and this gives the character and pleasing effect. There is a variation, of course, in different sets, but there are a few general rules which, if observed, will enable the dentist to get rid of the artificial appearance so often seen in his work. For instance, the central incisors usually stand with their cutting-edges slightly projecting; the bodies of the teeth being parallel. The lateral incisors have a little more inclination, and converge from above downward, the tips of their roots being farther apart than their cutting-edges and a little farther back than the tips of the roots of the central incisors. This peculiarity is the cause of the flattening of the alveolar plates, which has been given the name of the incisive fossa by anatomists. The cuspids are set more nearly perpendicular than the incisors, the roots being thrown out so that they form a prominence which is known as the cuspid eminence. To get the most pleasing effect these points must be remembered and artificial teeth must be set up accordingly; the central incisors with their cutting-edges rather prominent, the laterals with more inclination from front to rear, the bases diverging slightly, and the cuspids nearly perpendicular and full and prominent at the base.

The bicuspsids are next set up, their necks being kept well in, allowing the cuspids by their prominence to shield them from view.



Attention must also be paid to the positions of the teeth as regards the alveolar ridge, and they should be set as nearly directly over it as the case will admit, so that the bearing may be directly on the ridge and not behind it. The lower teeth next receive attention, and instead of beginning with the central incisors, as before, the second bicuspid is first set up. These have their place, the points of their cusps being directly under the interdental spaces of the upper bicuspids. This insures the proper interlocking of the two sets, and is the important point. The cusps and incisors are next arranged, the cusps having considerable prominence at the necks; the incisors, unlike the upper ones, being set up picket-fence fashion. After this come the second lower bicuspids and the molars. These are easily placed so they will come into proper apposition when they are brought together in the articulator, the latter being supposed to have only the open-and-shut, hinge-like motion; but it will be difficult to tell what the effect will be in the mouth, with the various movements of the mandible. Before the teeth can be articulated with any certainty of keeping contact, sufficient to prevent dislodgment of the plates under all ordinary circumstances, two conditions must be obtained. We must be able to imitate with a fair degree of accuracy, with the articulator, the movements of the mandible. We must have the models so set in the articulator that they are in the same relations to its joints that the alveolar ridges are to the temporo-maxillary articulations. Though this latter condition is not usually complied with, a moment's reflection will show its importance. The movements of the mandible are made from the two condyles as centers, and each point in the articulating surfaces of the teeth moves in its own direction, according to its location. If the models are wrongly placed in the articulator the movement of any particular point will not be the same as in the mouth.

As an instance to prove this assertion we may consider what is usually termed "opening the bite." The usual operations incident to the construction of the plate have been gone through with up to the arrangement of the teeth, and when they are tried in the mouth it is found that they will be better if they are brought down a trifle and the jaws separated a corresponding amount. The adjusting screw of the articulator is raised to separate the models as much as may be necessary and the teeth rearranged; but when they are tried in the mouth the articulation is found to be wrong. This state

of affairs has been experienced so often that it is a common saying that if the bite is changed in the articulator the teeth will not articulate properly when placed in the mouth. The reason for this is that the jaws of articulators are usually too long, and the models are consequently set too far from the centers. Then the height of the center of motion above the articulating plane, if it may be so called, is seldom thought of and is disregarded when the models are set. When the models are set too far from the center and the bite is opened, the teeth when placed in the mouth will touch at the second molars only, and considerable grinding must be done before they can be used at all.—*Cosmos, Jan. 1900.*

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**STORAGE BATTERY IN THE DENTAL OFFICE.** By G. E. Lob, M. E., Chicago. Read before the Chicago Dental Society. A brief description of the construction of the storage cell or accumulator, and the principle upon which it works, will be in order. Electric cells, or when combined in any number so as to form a single source called electric batteries, are divided into two great classes: 1. Primary batteries. 2. Secondary or storage batteries. *Primary batteries* are generators of electricity through the chemical action which takes place between certain different substances when brought into contact with each other; and independently from any outside electric current. To make this plainer, take the simplest form of a primary cell, a glass beaker filled with water, to which has been added a certain quantity of sulphuric acid, into which a strip of copper and one of zinc have been set, and connect these two metal strips by a copper wire. Immediately a strong chemical action will take place, showing an electric current flowing from the copper strip to the zinc through the conducting wire. The chemical action is as follows: The water is decomposed into hydrogen and oxygen, the hydrogen collecting on the surface of the copper and the oxygen combining with the zinc, forming oxid of zinc, which then combines with the sulphuric acid, forming sulphate of zinc. The principal seat of chemical reaction is at the surface of zinc, which is consumed by oxidation, while the copper acts as a conductor and is not consumed. Hence, since electric movement is from higher to lower potential, and the same law applies to the energy of chemical reaction, in common with other forms of physical energy, and since the electrical energy of the cell

is found to be strictly proportionate to its chemical reaction, it is assumed that the electric current originates at the surface of the zinc and flows through the fluid to the copper.

In the absence of external connection between the metal strips it is evident that the difference of electric potential would immediately become equalized and the current cease, but when they are connected by a conductor the current finds an outlet through the copper and flows back to the zinc through the external circuit; chemical action is thus sustained and the current becomes continuous. The law of the conservation of energy requires the expenditure of energy in one form as a condition of the production of the same amount in another form. Hence as chemical energy is the only energy expended in the battery, the natural conclusion is that it is the source of the electric energy or current generated.

*Secondary or storage batteries* are not generators of electricity themselves, but as their name indicates, only receptacles of electric energy, which is carried to them from an outside generator and stored in the cells in the same way as we store up solids or liquids in cans or bottles. Thus electricity is stored in a manner which is impossible with any other power. While stored the energy is dormant and can be retained for long periods with very little loss.

A storage cell consists of three principal parts—the plates, the electrolyte or liquid and the containing jar or box. The plates are divided into two kinds, positive and negative, and a set or group of these is commonly known as an element. The element is placed in a containing jar or box, which is then filled with a solution or electrolyte. The storage of energy in electric accumulators is accomplished by means of chemical action, produced in this case by the passage of an electric current through the element and electrolyte. The lead plates which form the element must be so constructed as to present a large surface upon which the chemical action may take place, as the amount of energy which can be stored in a cell depends upon the capability of the plates to take up the chemical action. This is termed the capacity of a cell.

The positive plates consist of lead upon which a coating or covering of peroxid of lead has been formed, while the negative plate is pure lead, the surface of which is of porous or spongy formation. The peroxid of lead and the spongy lead, respectively, are the portions of the plates which are subjected to the chemical action, and

are consequently called the active material. The electrolyte used with all storage batteries is sulphuric acid diluted with water in the proportion of one part of acid to from five to ten parts of water, according to the type of cell.

The positive and negative plates of each cell are arranged alternately in a group, all the plates of like denomination being connected together in multiple. Insulating pieces or separators are provided to keep the plates apart, so that when they are connected respectively to the positive and negative poles of a source of electricity the current can pass from one to the other only by flowing through the electrolyte.

As to the chemical reaction that takes place in a storage cell many different theories have been advanced, which would be too long to enumerate here. Joseph Appleton explains it thus: "The chemical condition of the plates and electrolyte differs when charged and discharged. When the cell is fully charged the positive plates have a coating of peroxid of lead, the negative being porous or spongy lead as described before, and the electrolyte is of its full strength or specific gravity. During discharge, that is when the positive and negative poles of a cell are connected through an external circuit, an E. M. F. is set up in the cell, a current flowing into the circuit from the positive plate."

The chemical action which takes place during discharge is as follows: The sulphur radical in the electrolyte enters into combination with the active material on both plates, forming sulphate of lead, the specific gravity of the electrolyte being correspondingly reduced. When all the active material has been acted upon in this manner the cell is discharged, for an equilibrium has been created between the two plates and the electro-motive force has fallen to zero.

When a cell is being charged the chemical action is reversed. The current enters the cell at the positive plate, passing through the electrolyte to the negative. The passage of the current through the electrolyte decomposes it, oxygen and hydrogen gas being given off. The oxygen is given off at the positive plate and converts the sulphate of lead into peroxid of lead again, the sulphur going back into the electrolyte; the hydrogen which is given off at the negative plate enters into combination with the sulphate of lead, reducing it to pure lead, the sulphur returning to the electrolyte and in-

creasing its specific gravity. This action restores both plates and electrolyte to the original condition of full charge. If the charging current is continued after the cell is fully charged, that is when all the active material has been converted to peroxid of lead and spongy lead respectively, no further effect will be produced except to decompose the water, the resulting gases pass off through the water, giving it a milky appearance. This indicates that the cell is fully charged. Continuing the charging current beyond this point, that is overcharging the cells at the proper rate, does no harm to the plates, but the energy represented by the current is wasted.

When the cell has been properly charged the positive plate is of a brown or deep red color, while the negative is a slate gray. Naturally the chemical action can take place only at a certain rate, depending on the amount of active material and the construction of the plates. If it is attempted to give to or take from a cell too much current the efficiency and durability are affected.

Generally speaking there are two distinct methods of preparing the active material of storage battery plates. One of these consists in applying mechanically some material to the surface or exterior of a lead-conducting plate or grid, which is either active itself or can be converted into active material by a process of electrical or chemical formation; the second method consists in treating or forming electrically or chemically the surface of a lead plate, which has been designed to present a large area to the electrolyte, whereby the surface is converted into active material. The first method is commonly known as the pasted type of cell, although the active material is not always supplied in the form of paste. The second method is known as the Plante type, so called because Gustave Plante, a French electrician, was the first to utilize practically the electrical method of forming the plates without the use of applied material.

The larger proportion of storage cells now in use are of the lead accumulator type mentioned so far, but there is a second class of storage cells made, which are called bimetallic accumulators, and whose elements consist of two different metals, the electrolyte being a salt of one of the metals. The principle upon which they work is the same as in the lead cells.

Naturally lead accumulators are very heavy, and this being a great objection to their use in certain instances, a combination of elements of less weight was sought for and the bimetallic cells were

produced, but they never have been used to any great extent. The electro-motive force in them is somewhat higher than that of the lead accumulator, but owing to the danger of local action on open circuit they will not retain their charge for more than a few days, while a lead accumulator will lose scarcely twenty-five per cent of its charge in as many months; besides, the tendency of reducing the weight of these cells must necessarily weaken their construction, and on this account their life will be much shorter. About two years ago a small battery of this class was shown at the different dental meetings in connection with a small mouth lamp, and special stress was laid upon its high electro-motive force and its small weight. The battery has disappeared from the market, and those who invested money in buying it have probably found out by this time that the whole appliance was a failure.

It will be seen from the foregoing description that the storage of electrical energy is entirely different from the storage of any other form of energy. A quantity of electricity cannot be stored or accumulated in a vessel or reservoir, because it does not exist in a tangible form. We are able, however, to make the electric current perform work in shape of chemical action, and afterward by setting up certain reactions can reproduce the current stored. So long as the materials used are free from impurities and the chemical action is continued until completed, there is practically no limit to the time which may elapse between the storage of electricity with its contingent chemical action and the reaction which, practically speaking, sets free again the electrical current.

Having considered the principles upon which the storage of electrical energy depends and noted the various elements which are necessary to make up the complete cell or storage battery, we will examine its application with special reference to dental practice. The first and most common application of the storage cell in dental offices is to furnish the necessary power to run the dental motor, where no day or other current can be obtained. In order to keep the number of cells necessary to produce a certain amount of power, required for this kind of work, as low as possible, special-wound motors must be used, which will work under a very small pressure. The unit of power in all electrical problems is the watt, which is equal to the voltage of electro-motive force multiplied by the amperes or intensity of current. 746 watts represent an electrical

horse power. To produce such a horse power, or any fraction of it, it will make no difference if the voltage is high and the amperage low, or vice versa. 92.25 watts or  $\frac{1}{8}$  horse power may be produced by a current of 110 volt pressure with only 0.85 amperes, or by 4 volts with 23.34 amperes, or any other combination giving the total of 92.25 watts, provided a motor can be constructed whose windings will be able to carry the current and at the same time offer sufficient resistance to the pressure, without being too clumsy in appearance.

Therefore the resistance and carrying capacity of the wire on the motor are the main points to be considered. Necessarily with a low voltage the wire must have a large cross sectional area in order to carry a current of high intensity without overheating the conductor, but as such a heavy wire has also a very low resistance and quite a large number of feet will be required even for lowest voltage, practical reasons forbid us to go in the construction of a battery motor beyond certain limits. Now the question arises, what power is actually needed to run a dental engine? I know that the large majority of dentists are laboring under a very wrong impression with regard to this point. Their judgment being based on the ratings and sizes of the ordinary motors coming under their eyes, most of them think that about one-fourth horse power would be needed for a cord outfit and laboratory work, and perhaps one-eighth horse power where the power is taken directly from the armature shaft. The reason for this is, that nearly all the small motors on the market are highly overrated and when it comes to an actual test the power developed will produce only fifty per cent or less of the indicated power. If the electrical motor is properly constructed, about one-sixteenth horse power will be sufficient for cord outfits and the running of a lathe head, and one-fiftieth horse power for a motor connected directly to the cable and handpiece. Of course the latter form will be the most preferred where a storage battery has to be used, as being the most economical on account of the smaller number of cells needed.

The next application of the storage battery in dentistry is to furnish light and heat, and in both cases more satisfactory results are obtained than from any other source of electricity. The small mouth lamp or the somewhat larger mouth illuminator will give a steadier light and will last longer than when operated from an in-

candescent light circuit through a rheostat, or from primary cells, as the current is of absolute uniform flow and no burning out of the lamps and going down of the light can occur through variation of pressure. Heating instruments, such as root driers or hot-air syringes where with a low voltage a current intensity of not over two or three amperes is required, may be as well operated from the incandescent light current through a rheostat as from the storage battery, but the electro-cautery, where with the low pressure a current intensity of from eight to twenty or more amperes is needed, cannot be served through a rheostat, and only a motor generator—a quite expensive machine—or the storage battery will answer.

Outside of the before mentioned apparatus and instruments, the battery can be used for any other purpose where the electric current is wanted, provided its cost is not too high, and the same result can be obtained in a cheaper way, as for instance in cataphoresis.

The efficiency of a battery depends to a great extent upon proper selection of the cell best suited for the work required, its care and maintenance. In the early days of storage battery work this was ignored, and many of the failures which have been recorded are traceable to this account. The general practice was to consider a storage battery simply as a piece of apparatus to store up electrical energy for any purpose, irrespective of the character of the work, the classification being nothing more than good, bad or indifferent, with very little of the first. Modern practice has, however, changed this and it is at last understood that there are many types of cells, and that a cell which can run a small motor need not be the one which should be used for heavy cautery work or to run a large motor.

In the dental office selection of the cell depends in a large measure upon the way it can be charged. Where a commercial current can be brought into the office and the charging can be done as often as desired, a cell of fifty ampere hour capacity will be sufficient for small motor work. If a larger lathe motor and heating instruments are used, larger cells of about double the ampere hour capacity will be needed. Usually portable batteries in covered wooden boxes are preferred on account of their neater appearance, but from a practical point of view the open glass jar is by far the better, because its contents are always open to inspection and the condition of plates and electrolyte can be watched.



The cells should be placed in a dry, well ventilated place, not too near any heater and not over twenty feet from the apparatus operated by them, and the conducting wires used must be as heavy as possible to reduce their resistance to the flow of current. This is a very important point to be observed, as many batteries which did not furnish sufficient current to give the motor its full speed, were found upon inspection to be placed in a distant cellar or laboratory connected to the motor with ordinary No. 16 or No. 18 lamp wire; while when this was replaced by No. 10 or No. 12 wire the motor worked perfectly.

In dental practice the storage battery should not be removed at all. The old method of sending out storage cells to be recharged at the electric light station or any other electric plant is impracticable and in most cases disastrous to the jar and plates. If the expressman handling the cells does not break them, the "expert" electrician, especially in small towns, has very little if any knowledge of the charging of storage cells, and either by reversing the poles or by sending too strong a current through them will destroy a battery that with proper care and attention probably would have done good service for several years. For the above reason storage batteries should be charged right in the place where they stand, and the charging current brought to them, so that it can be done without their removal. This brings us to the question, which current is suitable for charging storage cells and how it is to be done. Only a direct continuous current can be used for this purpose, such as furnished from a direct incandescent or arc light circuit, from a small dynamo, a primary battery or a thermo generator.

No charging can be done from alternating currents. In charging an accumulator only a small part of the E. M. F. required to force the current through the cell is expended in overcoming the resistance of the plates and electrolyte; the remainder is expended in overcoming the E. M. F. of the chemical action of the cell. It follows then that if the applied E. M. F. be just equal to the E. M. F. of the cell no current will flow, so that the E. M. F. of the cell itself may be considered as a counter E. M. F. opposing that of the charging current—in other words, the E. M. F. of the charging current should be about twice as high as that of the cells to be charged. On the other hand the amount of current charged per hour should not exceed what is called the normal charging

rate, and which differs according to the size of cells. The normal rate of charge for small accumulators is about ten hours, and if the cell has a capacity of fifty ampere hours not more than five amperes should be charged, or ten amperes for a 100 ampere hour cell. Thus in using a direct incandescent light circuit its voltage must be cut down by interposing the proper resistance in order to bring the current to the normal rate. This can be done either by a rheostat or by a bank of incandescent lamps connected in parallel, in series with the main circuit. Every sixteen C. P. lamp will allow about one-half ampere of current to flow and ten such lamps connected in parallel will furnish a charging current of five amperes. Of course there is no harm in charging at a lower rate than the normal, if the great number of lamps should be any objection to the operator, or to use fewer lamps of higher candle power.

With the arc light circuit, where the arc lights are connected in series with the main line and only a fixed amount of current is flowing, no special resistance is needed, as the storage battery is simply connected in series with the line the same as all the arc lamps.

In case the current on such a line should be in excess of the normal charging rate, which would be damaging to the plates, the battery should be connected in multiple; that is, all its positive plates to one end of the line and all its negative plates to the other. Thus the large current is divided through the battery and each cell instead of receiving the full amount of current will only receive its *pro rata*.

Very few dentists will ever use small dynamos to charge their storage cells with, as the first outlay for such an equipment is quite expensive and requires a good deal of attention.

To charge accumulators from primary cells, where no commercial current is available, is perhaps one of the simplest and also cheapest ways of doing. Only primary cells, which will be able to deliver a steady continuous current for any length of time, can be used for this purpose, and among them the so-called gravity cell in its different forms is the best. This cell will deliver a very steady current of a low intensity as long as the chemical action is kept going, and therefore it can be left connected permanently to the storage battery. All the attention needed is to replace the absorbed copper

sulphate about once a month and the zincs about every six or eight months according to the type of cell used. When white salts begin to creep out on top of the cells this is a sign that the solution is oversaturated with zinc sulphate, and part of it should be taken out from the top of the cell, without disturbing the solution too much, and be replaced by clean water. If these points are carefully observed the primary battery will furnish a very satisfactory charging medium, which renders the dentist absolutely independent from the exactions of electric companies, especially in small towns.

The gravity cells deliver a current of about three-eighths ampere, and when connected permanently to the storage battery will charge about nine ampere hours in twenty-four hours' time. If this should not be sufficient for the work to be done, another series of primary cells of the required voltage can be added, which will double the amount of current charged.

The use of thermo-generators in connection with the storage battery is comparatively new in this country, although they have been used quite successfully in Europe for this purpose for the last ten or twelve years. As the name indicates, in such apparatus the current is generated by heat, the instrument consisting of a large number of thermo-electrical pairs (strips of two metals of different coefficient of expansion and electric affinity), connected together in series in such a way as to expose the inside or half of all the joints to heat, while the other half or outside is kept cool. Thus by the difference of temperature between the two joints of each pair a small electromotive force is generated, which will increase with the number of pairs or elements connected together. Owing to the very small E. M. F. generated at each joint and the high internal resistance, quite a large number of pairs will be required to produce pressure sufficiently strong to charge three or four storage cells. Naturally the cost of such thermo-generators will be high and their use limited to small batteries. On the other hand, the electric mallet, mouth lamp and even a small fan motor may be operated successfully direct from the apparatus, while the amount of current flowing will not be strong enough to drive a power motor direct, and the accumulation of current in the storage battery is needed.

In charging a battery the following points should be watched: Special care must be taken that the polarity of the charging current is right. The positive pole of the battery must always be con-

nected with the positive pole of the charging source. The voltage required to charge should be at least fifty per cent higher than the combined voltage of all the cells in the battery, assuming for each cell an E. M. F. of two volts. The rate of charge should be preferably kept at normal or under, as continuous charging at a higher rate than the normal will damage the plates.

In dental practice discharging until complete exhaustion is not advisable. Repeated recharging only for a few hours every few days will keep the battery in much better condition and preserve the plates much longer than a complete discharge and then a recharge. Besides, the operator being liable to forget that his battery is exhausted will let it stand so for a length of time and the plates will soon become seriously injured. A long series of tests has shown that the continuous discharging of storage cells below one and nine-tenths volts is liable to produce sulphating of the plates; and the nature of the chemical action being changed, it also leads to the distortion of the positive plate, which is known as "buckling." As the plates are located very close together in the cells to reduce the internal resistance, buckling is liable to cause the plates to touch, thus short-circuiting the cell.

The plates should always be completely immersed in the electrolyte. Evaporation will cause the electrolyte to fall below the level of the plates; this is detrimental and must be compensated for by the addition of water, as it is only the water which evaporates, the acid remaining in the solution. When adding water to a cell to make up for this evaporation it should be put into the cell through a hose or funnel reaching to the bottom, otherwise the water being lighter than the acid will remain in a layer on the top.

With a good modern storage battery very few troubles are liable to occur, provided proper attention is given to keep the regulation of the charge and discharge within proper limits and if the cells are properly supplied with electrolyte. The only thing likely to happen and cause trouble is the formation of short circuit between the plates, causing the cell to discharge through itself. The short circuit may occur either in the cells through the scaling or peeling of the active material, the pieces which become detached lodging between the positive and negative plates, or in the apparatus operated from the battery.

As soon as it is noticed that the battery will not hold its charge it

should be immediately examined for short circuits. The best way to do this is to probe between the plates with a thin piece of hard rubber, thus removing any material which may have formed a connection between the plates. If this will not stop the trouble and the electrolyte is covering the plate entirely, in most cases the short circuit will be found in the apparatus. One or two charges and discharges will soon bring the cells back to their original condition. To sum up what has been said before, all that is needed to keep a storage battery in good condition is a proper installation, a judicious charging with due consideration for the amount of the current taken out and a careful maintenance of the cells.

The storage battery of to-day is a practical and mechanical piece of apparatus. Engineers have come to the assistance of the chemist, the result being a well-designed and constructed apparatus, free from the weak points which were inherent in all early types of cells and which necessitated the constant attention of a skilled doctor or nurse.—*Review, Feb. 1900.*

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**REMOVAL OF SUPERIOR MAXILLA AND PRESERVATION OF FACIAL EXPRESSION.** By Dr. C. D. Parker, New York. Read before New York Institute of Stomatology, Nov. 1899. Assuming that an operation is necessary, the anæsthetic to be used is the next important thought to be considered. I much prefer the use of local to general anæsthetic in this class of cases, for the patient often gives me aid. In nine out of ten cases I use beta-eucain; generally a two per cent solution I find of sufficient strength. In fact, for seventy-five per cent of all ordinary operations I think it more satisfactory than anything I know of to-day. By using two per cent of eucain hypodermically, and waiting fifteen minutes, the anæsthesia or analgesia is complete. This preparation is safer than cocain, notwithstanding the assurance given us that volasem is the antidote to counteract the latter's physiological action.

For all operations on the maxillary bones I do not find use for the bone-forceps or saw, especially in the upper jaw. I depend on the surgical engine and the instruments used with it, such as the trephine, drills, burs, and occasionally the bone-curet. Seldom is it necessary to use the knife or disfigure the face for removal of the maxillary bones, when one has been educated in the use of the surgical engine. With the aid of the periostotome the soft tissues

are separated from the bone and held out of the way, making the operation comparatively bloodless. Then with the engine and fissure drill the narcotic parts, such as in necrosis, are cut around and dislodged by the periostotome, as an elevator, or the slender root-forcep, that we are all familiar with. In case of caries cut around the supposed zone, and if not complete follow it up with the round bur till all the softened bone is removed. The great advantage in this method of operating is that you can cut ahead of you and not destroy laterally any more bony tissue than is necessary, nor scar the face, as is very often done to make room where the bone-forceps and saw are to be used.

Furthermore, what I consider an important feature in this work is that there are clean, smooth edges of bone, and with very little loss of blood. We have now reached a very important part of this subject which may be of especial interest to the dentist, that is, preserving the facial expression, which is so often destroyed by removal of the superior maxilla or a large portion of it. I have here a photograph which tells its own story, as the picture was taken with the artificial denture removed from the mouth. After suffering much pain for about three months his physician referred him to me for the removal of whatever necrotic bone was necessary from the superior maxilla. Caries was easily diagnosed, and I removed from the molar of the right side the alveolus, a portion of malar and frontal processes extending across to the left side, taking away the frontal, malar and alveolar process to second molar, as well as palatine process on both sides, leaving only posterior third.

It can be readily seen that most of the bones that fix and support the anterior facial expression were removed, and the usual result of such an operation is anything but pleasing to the eye in after times, by the sinking in of the nose and features in general. A method of preserving the natural facial expression in this class of cases, whether the operation has been large or small, is by the use of sheet-lead, so shaped as to restore, lift up, or hold out the face in its natural position, retaining it there until recovery is so nearly completed that it is of no further use or cannot be retained longer. The lead having been fitted in place, it is then removed and wrapped with at least one layer of surgical gauze, preferably boric acid, being careful to have the ends well covered if it is resisting much force, as the thin edges might irritate the soft tissues.

It is then placed in position, and with the fingers molded in its proper shape, the metal being soft and pliable enough for that purpose. The cavity is then packed with surgical gauze underneath the lead shield, being careful never to pack to the extreme bottom of cavity, for in so doing the new tissue is held in restraint and cicatrix formed. As granulation takes place the lead must be removed and made narrower, to prevent the new tissue that is forming from coming in contact with it in the bottom of the cavity. Repeat the cutting away of the lead shield from time to time, until the cavity is nearly or completely filled with the new fibrous or cellular tissue.—*International, March, 1900.*

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**ANTISEPTIC AND DISINFECTANT PROPERTIES OF SOAP.** The *British Medico-Chirurgical Journal* for September, 1899, has an article by Symes upon this somewhat homely but practical topic. With regard to the question, "Can germs live and multiply on soap?" he says that all soaps possess antiseptic properties in greater or less degree. The following experiments serve to illustrate this fact: (1) Fragments taken from the centre of a cake of soap by means of a sterile cork borer, and incubated in nutrient broth, were found in all cases to be sterile. (2) The hands were washed in hot tap-water with each soap; the tablet was placed on a clean surface, and cultures made from the soap at the expiration of three minutes. Those from germicidal and from scrubbing carbolic soap were sterile, and those from izal, toilet carbolic, lysol, and brown Windsor soaps showed growth of various organisms. (3) Small slabs of each soap were moistened and then heavily inoculated with a culture of staphylococcus aureus and kept in a moist hot chamber for two days. At the expiration of this time the surfaces of the brown Windsor, lysol and germicidal soaps were sterile, but scrapings from the others all gave rise to growth of the organism first inoculated. On none of the surfaces was there any apparent increase of growth, nor did he find it possible to grow moulds or bacteria on surfaces of soap kept under ordinary conditions. We may conclude, then, that organisms which get rubbed into a soap in the process of washing hands, clothes, or other surfaces, or which may settle upon soap from the air, are not capable of multiplication thereon. Of the soaps tested, this antiseptic property was most marked in that containing biniodid of mercury.

For practical purposes the second point—namely, the disinfectant value of soaps—is the more important. To test this the following method was adopted: A one per cent solution of each soap was made (this representing what the writer judged to be the strength of the solution which comes into contact with the hands), and to five cubic centimetres of this solution there was added a drop of a fresh broth culture of staphylococcus. The tube was then shaken and allowed to stand for a stated period, and then five drops of the mixture were added to a broth tube, which was incubated for forty-eight hours. Obviously, if the antiseptic property of the soap solution was sufficient to kill the organisms in the one drop of broth culture added, then the tubes inoculated from the mixture should be sterile; while if the solution had no antiseptic power, or if the time allowed was insufficient, then growth would occur.

Symes does not give the details of many experiments extending over several months, but simply states the result arrived at, viz., that tested in this way it was found that a one per cent solution of germicidal soap killed staphylococcus aureus in one minute, while the same strength of izal, toilet carbolic, scrubbing carbolic, lysol and brown Windsor soaps failed to do so in ten minutes, half an hour, an hour, or three hours. These solutions were, however, all sterile in from twelve to fourteen hours; the exact time in which this result was attained was not observed, nor is it of much importance, for under no conditions would objects be as long as three hours in contact with the soap.

It is a matter of some importance to note that all organisms are not affected alike by soap solutions. Thus the cholera vibrio, the typhoid bacillus, the bacillus coli, and the streptococcus are killed much more quickly, or by very much more diluted solutions, than are the staphylococci. For instance, the bacillus coli is killed by a two per cent solution of plain curd soap in from two to four hours. Our antiseptic precautions are, however, commonly directed against the more resistant organisms, the staphylococci, and therefore in testing the germicidal power of a soap it is preferable to work with these organisms. Symes has tested the germicidal soap with bacillus coli, bacillus typhosus, the cholera bacillus, streptococcus and staphylococcus albus, all of which were killed by admixture with a one per cent solution (equal to biniodid of mercury 1 in 5000) in one minute.



It may be concluded, then, from these experiments, that for practical purposes most of the so-called disinfectant soaps have no value, but that in the combination of biniodid of mercury with soap we have a useful means of disinfecting hands, instruments, surfaces, etc. Although a large number of trials were made, Symes did not succeed in sterilizing his hands by washing with the soap containing biniodid of mercury, although much better results were obtained with this than with any other variety. This points to the necessity of the operator first washing his hands and then soaking them in an antiseptic solution.

It has been thought that the germicidal action of soaps is due to their alkalinity, especially to the free alkali present. Symes does not think that this can be the case, for Dr. Munro, from a careful analysis of the samples tested, found that the difference in the amount of free alkali is infinitesimal. Moreover, he obtained no better results with soaps with high total alkalinity than with the others.

Although the exact combinations formed are not known, there are many observations to prove that certain antiseptics when mixed with soap partly lose their power. This is certainly the case with carbolic acid, lysol, and izal. Rideal, who has done much work on this subject, considers that for an antiseptic soap an olein base is the best. Superfatted soaps are in his opinion not so suitable vehicles for antiseptics as soaps with a moderate excess of alkali. The presence of free fat or oil strongly militates against germicidal action—witness Koch's discovery that carbolized oil has no antiseptic value. Acids and free halogens are incompatible with the fat. Boracic acid is converted into sodium borate and most mercury salts into insoluble mercuric oleate. Oleates do not generally mix well with soap; fluorids, sulphates and oxids give better results. Rideal found the double iodid of mercury and potassium to mix well and form a good antiseptic with soap, compatible with strong alkalies and not precipitating albumen. In composition this resembles the soap with which were obtained the best results.

In conclusion, Symes points out that the matter is one of considerable importance with regard to nurses, attendants upon sick persons, and the general public, who may be led to think that in using so-called antiseptic soaps they are insuring efficient disinfection. There is also an economic side of the question, for most soaps im-

pregnated with chemical disinfectants are much more costly than plain soaps, though as disinfectants they are of no greater value.

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**INFANTILE SCURVY, WITH REPORT OF A CASE.** By Dr. E. H. Babcock, Brooklyn. Read before Second District Dental Society, Dec. 1899. Two reasons influenced me in the selection of this subject: The first was, that owing to the appearance in the mouth of one of the earliest and diagnostic symptoms, the dentist might often be the first to recognize the trouble, thereby saving the physician and parent much anxiety, and the little patient much suffering. The second was, that owing to the comparatively few cases reported, the subject is less well written up and consequently of greater interest, especially so to the writer, as he has happened to meet with a case that differs materially from most of the cases already reported.

Billings defines scurvy as "A disease characterized by anemia, general depression, hemorrhage from mucous surfaces, a purpuric eruption, and inflammation of the gums with loosening of the teeth." Dr. W. Gilman Thompson says: "Improper diet is unquestionably the exciting cause of scurvy in nearly all, if not all cases; but in attempting to define wherein the dietetic error consists one is met by very conflicting facts, and the conclusion must be reached that neither the presence nor absence of any one food or any special class of foods is invariably productive of scurvy. Among the chief dietetic errors which have been believed to produce it are: Excess of salt meat and fish, exclusive meat diet, tainted food, badly cooked food, too much fat, lack of fresh vegetables and fruit, a too monotonous diet, and, in infants, absence of fresh milk."

This disease is found among the children of the rich as well as those of the poor, but the singular and unusual fact is that it is more prevalent among the former than the latter. This is easily understood when we consider how differently the children of the extremes of society are fed. The poor child is generally suckled by its mother and, whether suckled or bottle-fed, is taken to the general table and eats what the older members of the family have, thus getting sufficient variety to counteract any lack in the milk supply. The child of the rich is suckled, if suckled at all, for only a short time, and then handed over to a nurse to be bottle-fed. Up to 1883 this trouble had been diagnosed as "acute rickets." At

that time two English physicians, while making post-mortem examinations on the bodies of two fatal cases, discovered the true nature of the trouble and decided that the disease was scurvy, not rickets.

It is my opinion that this trouble will become more common, owing to the fact that many of the mothers of to-day are not strong enough to suckle their children; while many of those who could, will not be bothered or are too busy with social affairs to give the child the required time and attention. The child, if strong and healthy, is given cow's milk and may thrive; but if its digestion be poor it is put on some one of the proprietary foods and is likely to be attacked with scurvy. It does not seem quite fair to condemn all the proprietary foods. They are mostly predigested and are given to children that have weak digestion, and who would die if just such foods were not obtainable. These foods have their limitations, and when a child reaches a certain age, differing with each individual, supplementary food should be given.

*Diagnostic Points.*—First age: occurs usually between six months and two years. Second history: generally a record of improper feeding. Third: Swollen and painful extremities. Fourth: stringy, purple gums, bleeding easily. Where teeth are not erupted the gum lesions are absent. Fifth: in severe cases, eyelids become swollen, black and have appearance of "black eye."

*Morbid Anatomy.*—Hemorrhage beneath the periosteum is the typical feature. The femur and tibia are the bones most frequently affected; the fibula but rarely. The shaft of the bone near its epiphysis is the point of most tenderness. The joints are usually normal. Deep-seated muscles are frequently the site of extensive extravasations of blood. Superficial muscles are thin and pale, owing to the serious infiltration. "Infantile scurvy may be mistaken for rheumatism or paralysis; less frequently for rickets, otitis and purpura." Prognosis is good if recognized early. Recovery is rapid under proper treatment. Death has happened where trouble was unrecognized. Lesions of rickets are found in the bones and are permanent; while those of scurvy are evidently in the blood, and rapidly disappear under treatment. Rickets predisposes to scurvy.

*General Treatment.*—Stop the use of all proprietary foods and condensed milk. Give fresh cow's milk, beef juice, orange juice or other fresh fruit. If over six months, add sieved baked potato

to its food. There is considerable difference of opinion as to whether boiling of the food is injurious or not. As the child improves less of the milk or other antiscorbutic food will be digested. Later, iron, cod-liver oil or other tonics may be given.

*Local Treatment.*—Gums: avoid use of nitrate of silver or other irritant. Diluted orange juice, to which glycerin has been added, is recommended as an application. Limbs: cold compresses if there be much pain and swelling. Avoid massage or other friction. Limbs should be moved with great care, as there is danger, in severe cases, of spontaneous fracture of the shafts of the long bones. Scorbutic children should be protected from sudden changes of temperature, as they are specially liable to contract bronchitis and pneumonia.

*Case in Practice.*—Last January the mother of a little ten months' old girl asked me to look at the child's gums. She had four upper and four lower incisors. The gums above the upper incisors were swollen and of a deep purplish color, as though they had been badly bruised. Gums around lower teeth were unaffected. A mouth-wash rapidly cleared up this trouble. The child had never been very strong, but was well and plump.

One night about a week after this she cried for a long time, and when taken up her feet and hands were icy cold; the hands seemed much swollen. The furnace fire had been allowed to become very low and the temperature of her room fell to forty-five degrees F. Her hands were bathed in cold water, then dried and very gently rubbed to bring back the warmth. The following day she seemed better, but cried out if touched. Any attempt to straighten out her legs, which she kept drawn up toward her abdomen, would cause a cry of pain.

A physician friend to whom I mentioned the case said, from my description, he judged it was rheumatism. I did not agree with him, giving as my reasons the facts of no rheumatic history in the family, child under one year of age, and surroundings the best. Afterward I asked Henry Wallace, M.D., to see her, and after a careful examination he made the diagnosis of "infantile scurvy." He suggested meat juice, orange juice, change from sterilized milk to milk heated only to about one hundred and sixty degrees. The child improved rapidly. Her teeth were erupted on time and with but little disturbance to her health or temper. She was backward

in the matter of walking and talking. At the present time, almost a year later, she talks some and walks nicely alone.

What deceived me in the matter of making a diagnosis were the facts that she was plump and seemingly well; she was fed on milk and allowed to have bread crusts; her home was in a suburb of the city, being well lighted, ventilated and heated; the gum trouble was limited to the upper jaw and disappeared upon the application of an alkaline mouth-wash. Her food consisted of Borden's milk (not condensed), two parts; water, one part; six tablespoonfuls of cream, to which was added Peptogenic Milk Powder. The whole was stirred, and being heated for ten minutes was removed from the stove just as it began to boil.—*Items, March, 1900.*

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**GOLD FILLINGS IN ARTIFICIAL TEETH.** By Dr. S. M. Weaver, Cleveland. The idea in filling false teeth is to get rid of that "horrid false tooth" look of which the patients are very likely to complain. After the tooth is selected and ground to fit in the proper place, it is placed in the mouth and the shape of fillings in natural teeth are noticed carefully and the same is reproduced in the artificial tooth by grinding straight through the porcelain facing with a small round-cornered corundum wheel; when this is of the proper shape the margins are polished with a fine stone, the same as in a natural tooth. A gold backing of 24k, 32 gauge, large enough so that it can be burnished up into the cavity, which can be done with the shank of a small round instrument, is placed on. The surplus gold is then trimmed off, leaving enough extra to extend a trifle above the margins of the porcelain. A platinum backing of 32 gauge is placed over the gold, allowing it to extend out straight with the contour of the teeth, leaving it slightly flush. The pins are split to hold backing in place. There is now a V-shaped space to be filled in with 22k. gold; to do this, place the tooth in a pair of self-holding soldering pliers with a small piece of asbestos over the porcelain to keep the oxid of iron from staining it. Wipe the cavity with a very little borax cream and hold above the Bunsen burner, porcelain side down and then gradually carrying it into flame; when the facing becomes red hot turn it over and place the small pieces of gold already prepared into the cavity, taking pains to warm them in the flame before touching the tooth, as the chill might check the facing; care must be taken not to remove it from

the flame until the soldering is complete. Next place the brush flame of the blow-pipe on and melt down the gold gently, being sure you have enough material on to restore the contour. To prevent possibility of checking throw it into some plaster and allow it to cool. When cool grind and fit the case and you will have the former tooth reproduced in detail. This method can be used in crown, bridge and plate teeth.—*Ohio Jour.*, Feb. 1800.

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**BOER AND HIS DENTIST.** A correspondent who has lived many years in South Africa sends us the following: The Boer is a constant sufferer from two ills—indigestion and toothache, and the one is the outcome of the other. He endures the indigestion with comparative cheerfulness; his father and mother had it before him, and why should he not have it also? But when the toothache arrives and gets in its fine work his philosophy vanishes, and he incontinently caves in; and this is where the 'traveling dentist' comes in. It is a peculiarity of the Transvaal that most professions and trades have their exponents who travel from one end of the country to the other, offering their services to all who may require them, and in this category the dentist takes a prominent part. The men who follow this calling embrace in their ranks representatives of all classes of industry; many of them have at times served in Her Majesty's forces—none of them has any right to ally himself with the profession; but the Boer asks no questions and so this little discrepancy does not matter. These men travel round the country districts, as a rule mounted on some ill-fed, weedy horse. Their stock-in-trade consists of some pairs of forceps, a stock of remedies, and an abnormal amount of what our American cousins denominate "push." They travel from farm to farm until their services are required. When a Boer gets the toothache everyone in the neighborhood knows of it. The news is generally carried round by the Kaffir or Hottentot servants, who have sought safety in flight, for on such occasions the Boer invariably relieves his feelings by knocking smoke out of everything black that comes within his reach. The dentist will be told that Oom Jantze, who lives behind the little red kopje, has got a toothache and his Kaffirs have run away. On the receipt of this news the professor of the healing art will inquire the way and set off post haste to relieve the afflicted one. On his arrival at the farm he is welcomed by the rest of the family and

terms are arranged. This will take some time, because there are no standing fees, and each side will endeavor to get the best of the bargain. The victim himself will often join in the discussion and try to lower the price by saying, "It's a small one and the pain is getting better. Perhaps I need not have it taken out." This talk, however, is always recognized as mere padding by the dentist and little notice is taken of it. After the bargain is struck the operator extracts the tooth (some of these men are fairly skillful), and the money will be paid. The dentist's work is not over, however, when he has pulled out the offending molar and handed it to the sufferer. He now unpacks his wallet and produces his stock of remedies, and dilates on the fearfully infectious nature of toothache. "You will all have it," he will cheerfully remark, "everyone of you. You (pointing to the vrow) will be lying in that chair shrieking with pain before this day week. You (turning to the daughter) will have your face swollen to the size of a rotten pumpkin in three days' time unless you take something to drive it away;" and then he will produce the one infallible remedy, and as a rule prevail on every adult member of the family to lay in a supply. If the day is still young the dentist will continue his journey; if it is verging towards evening he remains at the farm for the night, a hospitality which is always freely accorded. One advantage of this migratory life is that a man can live free of cost, because the Boer will not accept pay for entertaining a traveler. He will, however, charge for any supplies the horse receives, and this accounts for the usual well-fed condition of the man and the air of starvation which invariably hangs over his steed. Some of these men have regular beats which they visit from time to time and where they are well known. They are a jovial, happy-go-lucky crew. They make money easily at times and spend it equally freely. When "things are bad," they philosophically incline to the old saying that the sun cannot shine every day, and hope for better luck on the morrow. There is not much doing in this particular line to-day, but they will turn up smiling again when the war is over.—*Dental Record, March, 1900.*

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**ABSORBENT MATERIALS.** By S. A. Hackett, D.D.S. Read before Oakland (Cal.) Dental Club, Jan. 3, 1900. In filling teeth we need to remove fluids in greater or less quantities. There are supplied to us various absorbent materials, cotton, paper and spunk

being the common ones. These materials in the rough state consist of a mass of interlacing fibers, which we roll, cut or tear into forms suitable for our use.

In the movements of fluids it has been found that they flow most readily in straight channels. If we take a pledget of cotton to have terminating on its surface as many capillary tubes as may be formed by the spaces between the multitude of crossing fibers, we shall find that each tube has as many angles as there are fibers in the mass of cotton through from one side to the other. In cotton this can be remedied by using the sheet cotton, the fibers running one way. By rolling small squares of this into cylindrical forms, it will be seen to consist of a bundle of parallel fibers. In use, the end being applied to the moisture, the whole mass is instantly and evenly charged with fluid. When bibulous paper is rolled into pellets each layer of paper making up the pellet must become saturated before the next layer may take up the surplus. Now if the paper be rolled into ropes and cut with sharp scissors into convenient lengths, we have capillary spaces between each absorbent layer running from end to end, the conditions being much the same as in the bundle of cotton fibers mentioned before. Spunk, owing to its finely reticulated structure, will not absorb the thicker fluids readily. It absorbs water actively, particularly if the spunk be torn, thus opening the outer fibers.

The fibers of spunk are much smaller than paper or cotton, and instead of being arranged in straight lines or accidental curves are a mass of tightly twisted coils. When the spunk is cut in blocks, as is a common practice, these short curves are a source of danger, for any surface to which the blocks are applied will be dusted with short pieces of spunk fiber cut from the short curves that cross the line of cutting. Operators when testing for moisture while filling with gold, using blocks of cut spunk, have placed the block against the gold and wondered why the gold did not adhere when they resumed filling and there was no moisture; may have wondered, too, why certain fillings decayed at a point of the margin where, as a last detail to make sure of dryness, they had carried a block of cut spunk, leaving a powder of short fibers to decompose. The practice of rolling cotton or any absorbent material around in the fingers to form pellets never improves the material. If the fingers are dry, scales from the epidermis are drawn off on to the pellet, and if



moist the pellet becomes a failure as an absorbent. Both cotton and paper can be prepared with fibers running parallel and with capillary spaces running the way of the axis, rendering them a much more rapid and thorough absorbent, the ends which are applied to the surfaces being untouched by the fingers. It is well to bear in mind that an absorbing material should absorb, and at the same time leave no foreign matter behind.—*Pacific Jour.*, March, 1900.

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**LABORATORY HINTS.** By A. E. H. Lister, Lincoln, Eng. It is not generally known how to obtain a good die from a lower model that has six or eight anterior teeth standing, and the jaw very much undercut below the necks of the teeth lingually. After the model has been prepared in the usual manner, oil or vaselin the parts adjoining the undercut, then flow plaster inside and build up the teeth as high as the plate is intended to go. While still plastic stick in two pins at a suitable distance apart and press them down until they touch the model. When fully set you can withdraw pins, and by gently tapping model the plaster will leave it clean. Thoroughly dry plaster, then replace and stick it with a little wax to model; take an impression in sand in the usual way. Remove plaster from model, see that it is perfectly dry, carefully replace in sand impression, and either stick the pins through the holes already made into the sand, or hold it lightly in place with a knitting needle or anything suitable until you pour in the metal. After a little experience with the above process you will be surprised to find that in nine cases out of ten you can procure a die on which to finish striking up a plate, which you could not have secured in any other conceivable way, to say nothing of the time saved.

When casting plaster impressions, instead of using oil or soap for the separating fluid, paint them over with a paint made of vermilion and oil, when you will be better able to detect the line of demarkation.

To clean the dirt and wax from teeth before trying them in, rub lightly with a soft rag moistened with methylated spirits.

If a vulcanite piece is to be packed upside down, you can economize time by inverting the impression for the duplicate in one-half of the flask, instead of in the usual way. Then when you wax the piece on to the model it is already flaked in one-half and there is no waiting for the plaster to set before you pour the counterpart.

To remove vulcanite from between the teeth, take a stiff, fine needle, mount it in a small handle or broach holder, sharpen it on two sides, and you have a useful little tool for the work.

When using water-of-ayr stone to erase scratches, it will greatly facilitate the removal if you occasionally dip it in a little pumice.

To remove scratches from a very deep palate, if you have not a hub brush, round one end of a cork and fix it on lathe mandrel the same as you would a brush, using the usual polishing paste.

Nail a wine cork conveniently on bench and stud it all over with pins (it is surprising to see how many one will hold), when you will always have some handy for sticking in impressions of teeth, etc.

Paste a piece of sandpaper within reach underneath bench, and you have a handy place to strike your matches.—*Items, Feb. 1900.*

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**ULCERATION OF THE GUMS IN MIASMIC FEVERS.** By Dr. M. I. Polo, Cuba. During the war in our island for independence I had the opportunity of observing its pathological effects. When the war terminated almost all of those who had taken part in it were attacked by chills and fever, and in the majority of revolutionists, on account of lack of medicines and food, anemia made great progress. Because of this anemia came ulceration of the gums, feter unsupportable, painful and difficult mastication, and slight hemorrhages. The infirmity presented itself in the form of small ulcerations on the gums, and if not cured in time these ulcerations attacked the throat, cheeks and soft palate.

In view of these symptoms I employed disinfectants and astringents, such as tannic acid, permanganate of potash, tincture of ratania, borate of soda, etc.; and the caustics, such as iodine, sulphate of copper, nitrate of silver, etc., but none of these gave satisfactory results, so that days and days passed without either cure or alleviation.

Among other experiments I prepared an official solution of chromic acid, crystallized—one part of acid, one part of distilled water, and afterwards diluted with two parts of water. Before undertaking the cauterization I prepared a concentrated solution of cocain and with a brush lightly painted the affected parts, to produce slight anesthesia. Then wrapped a fine instrument with a film of cotton, and dipping this into the acid, carefully touched the affected parts of the gums.

I repeated this operation every two days, maintaining an aseptic condition of the mouth with the following wash: Acid boric, 1 gram; listerine, 30 gram; honey, 20 gram; decoction of quinin bark, 300 gram; and in four days the patients found themselves practically cured. Among my patients was one who had been attended a long time by a physician, but became wearied and solicited my services the first of the week. I treated him as above, and by Thursday he could eat food with ease, although he had partaken only of milk for 22 days. It is my opinion that any morbid growth or affection of the mouth, excepting malignant tumors, can be cured by these therapeutic agents.—*La Revista Dental Americana*, March, 1900.

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**ADENOIDS IN INFANCY.**—Jacobi has confidence in daily irrigation, with normal saline solution of the nasopharyngeal cavities, which he asserts will render small adenoids harmless or may cause their complete disappearance.—*Med. Council*.

**PARAFORM FOR WARTS.**—Meuse (*Dermatol. Centrall.*) recommends paraform for the treatment of warts on account of its penetrative power. He has also used it in papular syphilides and in psoriasis palmaris. The drug is made up with collodion (10 per cent). Usually after two or three days the epidermis peels off.

**ETHICS VS. EXPERTS.**—"The pig-headedness of the medical fraternity of this country on the subject of advertising is one of the things no man can explain."—*Newspaper Maker*. This does an injustice to the shrewdness of the medical profession and cannot be substantiated by facts. There is scarcely a newspaper in the country that does not carry from one to four columns of "professional cards" the year around without disturbance, for which from \$5 to \$15 a year is paid for each card as regularly as bills are presented. Supplemental to the regular "card" many physicians may have confidential understandings with their town papers that every personal mention of them in connection with prominent cases shall be charged for at regular local rates. The "legitimate school" has its code of ethics, to be sure, but it advertises too, in a most scientific and effective way. For illustration, how very common are innocent looking little news paragraphs something like this: "Our old friend and neighbor, Wm. Fancaster, met with the misfortune of a fall upon the icy pavement yesterday and severely wrenched his shoulder so that he was taken home in a carriage. Dr. Jones was hastily summoned, and under his prompt treatment the patient was soon resting comfortably. The doctor assures us that, although his patient's symptoms were quite serious at first, they yielded to proper treatment, and he hopes to have Mr. Fancaster in his usual place at the bank in a few days." Who would suspect that a two-dollar bill lurked beneath that item of news? The "pig-headed fraternity" can give our "advertising experts" the longest kind of odds and then forget the game. and still win out in a canter.—*Caxton Caveat*.

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Where All Communications Should be Addressed.

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## Editorial.

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### HARLAN, HOLBROOK AND HUNT—THE DISGRACEFUL TRIUMVIRATE.

We print below a letter which has appeared in the April issues of the *Dental Review*, the *Indiana Dental Journal*, and with one or two of the most scandalous falsifications omitted, in the *International Dental Journal*:

MR. EDITOR,

*Dear Sir:*—There appeared in the December DIGEST an article entitled, "Are there Traitors in the Camp?" the writer of which, after referring by name to certain Newark dentists who had made an honorable settlement with the Crown Company, says as follows:

"Personally, we believe this so-called settlement is merely an arrangement between these men and the 'Crown Company,' the ulterior purpose of which is to make it appear that some members at least have no confidence in the Protective Association, as this would, of course, tend to weaken the influence of our organization, etc."

During the dental convention at Niagara Falls, when the newspapers published the decree of the court in favor of the "Tooth Crown Company," Dr. Crouse declared that he was utterly surprised and dumfounded, as he even did not know the suit was pending. All who were present at the convention remember his talk, and that he sent for his lawyer, who also expressed surprise and professed ignorance of the whole matter. At that moment the idea occurred to me, that if the men to whom we paid money to protect our interests could not keep track of what was going on in open court in a suit the outcome of which would be of more vital importance to the dental profession than any ever before instituted, then we need no longer look to Dr. Crouse or his lawyer for protection. That view of the matter would, naturally, destroy our confidence. But equally bad, or perhaps worse, is the only alternative view—that these two men, Dr. Crouse and his lawyer, were cognizant of the suit. In fact, I know that they advised witnesses while it was in progress, yet to us they professed ignorance. And now, as if to further test our credulity, they cry "Traitor," when a dentist complies with a ruling of the United States court.

I am a member of the D. P. A., and gave my money that I might be protected against fraud and imposture, but not for witnesses like those described in Judge Townsend's opinion:

"To further support the defense of anticipation, the defendant has introduced the same witnesses who, and the same exhibits which were before the court in the Bennett case. The inexplicable contrast between the statements of the same persons in the two cases is either an object lesson as to the fallibility of human memory and the uncertainty of human testimony, or is forcibly suggestive of perjury and fraud. \* \* \*

"In the present suit not one of these witnesses is able positively to identify said exhibit, and the 'wife of a clergyman and her two daughters' now testify, after an examination of church records, etc., that they were mistaken in their former testimony, and that the cap was not put in Mrs. Martz's mouth until 1878, or until after the Low invention was completed, as found in the Richmond case and further proved herein. Even Dr. Beardslee now says that he cannot now testify that said work was done any earlier than the year 1878, and that, so far as he knows, the testimony of the Martzes as to the date when it was done, is correct. And further, as if to cap the climax of these contradictions, an apparently disinterested witness, Dr. Palmer, testified that he himself made the Beardslee-Martz exhibit, and was told at the time that 'whatever of the kind I did was for use in defending the suit of the International Crown Company.' It is unnecessary to discuss further this branch of the case. \* \* \*

"The defense of anticipation herein is overwhelmingly disproved by disinterested witnesses. The methods by which the Beardslee-Martz evidence of anticipation was secured by Dr. Beardslee in the Richmond case appears to have been questionable and reckless, and it is to be hoped that such practices are unusual. The contradictions in his testimony are so direct and material as to disentitle him to any consideration \* \* \*

"Day's testimony has not been discussed because his veracity is attacked, his testimony is contradicted, and the facts stated by him, if true, would be insufficient for various reasons."

A few years ago this class of work was unknown to me, but there are others who claimed it was old. So we banded together to raise a fund that might be used to investigate and find out the former state of the art, and Dr. Crouse was entrusted with the task and the funds. What he has done is here stated by Judge Townsend in the United States court. How he has spent the funds we do not know, but we think if he has proper evidence he must produce it soon or be branded the Arnold of the "camp."

If the DIGEST is the mouthpiece of the dental profession, why has not the decree of the court appeared in it? Is the profession not capable of reading it understandingly?

Furthermore, while we were sending communications to Dr. Crouse to Chicago in regard to the suit, and waited several days for his tardy reply, we learned—and now know it to be a fact—that at that very time he was dining and dining in New York City with the president of the Tooth Crown Company. In the early history of this Republic, when Arnold did such things, he had to flee the country.

In addition, we know of prominent dentists, members of the Dental Protective Association, who applied to it for protection when they were sued by

the Crown Company. They were sued, enjoined, and suffered great loss, but were not defended by the Dental Protective Association, nor reimbursed by it for all their outlay.

Now, these are some of the reasons why we paid the Crown Company.

C. W. F. HOLBROOK.

This letter is full of deliberate falsehoods, and is not only a gross libel upon the editor of this journal, but as all thinking men of the profession will recognize at a glance, is distinctly formulated in the interests of the International Tooth Crown Co. We are fully aware of the personal animus of the authors of this attack, but shall not for a moment permit them to turn us from the main issue. We have endeavored for a number of years to earn the ill-will of every enemy of the profession and we welcome this personal abuse as a tribute to our zeal in a good cause. As these renegades have some sort of standing in the profession, we deem it necessary to take up the more serious charges.

For nearly two years previous to the Niagara meeting last August we were aware that the Crown Co. were trying by some trick or scheme to obtain a reversal of the former decision which was in favor of the Protective Association. Two years ago we sent a letter to every member of the Association, Holbrook included, and followed it up with two more, relating our fears, and urging that the assessment authorized by the by-laws be paid. Holbrook did not respond, and to this day is a delinquent, not having paid his legal obligation to the Association. Even if the individual sued had been a member, instead of a person hired by the Crown Co. to stand as a defendant, we should have been compelled to put up our personal funds for the defense, as the Association had no money in the treasury. Furthermore, at various state meetings we urged upon members the necessity of keeping up the fight and showed the danger of the Crown Company's actions. Holbrook and men of his stamp who refused to pay their assessments are the culpable ones in this matter.

The statement that members of the Association suffered great loss through being sued by the Crown Co., inasmuch as they were not protected by the Association, is a barefaced lie. On two or three occasions in the past when members have been sued it has appeared, to their shame be it said, that they were in collusion with the Crown Co. In such cases we of course refused to defend in the name of the Association, and our suspicions were confirmed by the fact that no one of these men was further molested by the Crown Co.

Attacks on us personally will not suffice to lead us into a discussion of Judge Townsend's decision. We would say, however, that the witnesses who testified in the Association's former suit, and then contradicted themselves in the last case, where the Association was not represented in any way, gave straightforward testimony in the first case and *it was properly secured*. There were many queer circumstances in connection with the last suit, but we must decline to outline our plan of defense in the dental journals or to try our case therein.

Every member of the profession which he has betrayed, and every dentist of the state which he has disgraced, should point the finger of scorn at Holbrook, the Crown Co.'s tool. If dealing directly with him we should simply brand him as he deserves and drop the question, but as the hireling of the International Tooth Crown Co. we must show him up. He is an intimate friend of the Crown Co.'s attorney or agent at Newark, and it is currently reported that he secured that individual his "lucrative" job, and that he was the first dentist to settle and advised the others to do so. Judas received thirty pieces of silver for a certain act of betrayal, but we have not learned Holbrook's price.

Now as to the dental editors who have defiled their columns with this contemptible attack upon the Association. The screed was sent to the *Items of Interest* and the *Western Dental Journal*, but the editors of both these publications are fair-minded men. They wrote us for an explanation of the matter, and upon learning the true inwardness of the situation of course refused to lend their journals to the Crown Co. The other three editors had neither the courtesy nor the foresight to even ask us for the other side of the question. We are greatly surprised that Dr. Truman, editor of the *International*, should have published, in a journal which has always laid claim to being independent and devoted to the welfare of dentistry, matter subversive of the interests of the dental profession. Dr. Truman has also published an editorial, which he probably means to be fair, but he coincides with the Crown Co. and urges that we try our suits in the journals. Dr. Truman has always shown himself to be an honorable gentleman, and we do not think in the present case he realizes how he has sided with the Crown Co. in their efforts to make us outline the defense which will be adopted by the Association, but we certainly feel that he has laid himself liable to censure

for not even taking the trouble to find out the facts in the case before he published the Crown Co.'s letter.

We are not surprised that Geo. E. Hunt has lent himself to the dirty work, for he is avowedly not in favor of the Protective Association. At the last meeting of the Indiana State Dental Society he stated that he had not paid his assessment, did not intend to do so, and urged that the Association be disbanded. We understand that Hunt has given up the practice of dentistry and now seeks to make his living off the dentists. Even if professional honor does not influence him we should think financial considerations would have prompted him to refrain from making his journal an instrument to encompass the Crown Co.'s ends.

What can be said of A. W. Harlan, editor of the *Dental Review*, a professedly professional man? Although we may have had some differences of opinion, we did not suppose that his spleen would carry him to such lengths. In his personal troubles he has always had our sincere sympathy and the proffer of any aid we could give him, and this is the return. Ignoring the injustice to ourselves, the profession has honored and favored Harlan in many ways, yet he now turns traitor to his colleagues and joins hands with the worst enemy of the dental profession. What consideration should be shown men who will stoop to do the unclean work of such a predatory corporation as the Crown Co.?

Be all these things as they may, the time has come, in view of these attacks, when the profession must speak either for or against the management of the Protective Association. Is it not enough to give one's time and energy, to relinquish almost all recreation and pleasure, to be satisfied with a greatly diminished income through loss of time taken from one's personal practice, to fight the battles of the whole profession against corrupt gigantic trusts—all these things through twelve long years and without one cent of compensation—without being called upon or asked to answer malicious lies circulated by trust journals? The International Tooth Crown Co. are very aggressive in the east, are harrassing the dentists where suits have been brought, and started several new suits last week. To show the danger which the profession is in at the present time, we quote a statement made in a letter under date of April 24 to Mr. Offield, the Protective Association's attorney, by the International Tooth Crown Company's attorney: "*I have assumed sole*



*charge of the above named company's litigations. It is, I believe, proposed to conduct examinations of all defendants in all cases pending and to institute as rapidly as possible a considerable number of new suits, about one thousand, throughout the United States, and to conduct examinations in each of these as soon as at issue."*

It is the evident intention of the Crown Company to break the back of the Association and to wear out and discourage its management. Yet in the face of this, editors who claim to have the good of the profession at heart are now lending their influence to its enemies. We have borne the vilest kind of personal abuse for many years, but the time has now come when the profession must say, and in no measured terms, whether or not they have confidence in the Protective Association and its management and wish us to continue in the work.

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## Notices.

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### NATIONAL ASSOCIATION OF DENTAL FACULTIES.

This organization will meet at Old Point Comfort, Va., on the afternoon of June 18, 1900.  
J. H. KENNERLY, Sec'y, St. Louis.

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### CALIFORNIA STATE DENTAL ASSOCIATION.

The annual meeting of this organization will be held at San Francisco, June 19-23, 1900.  
W. Z. KING, Sec'y, San Francisco.

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### COLORADO STATE DENTAL ASSOCIATION.

The annual meeting of this organization will be held at Boulder, Colo., June 12-14, 1900.  
L. S. GILBERT, Sec'y, Denver.

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### MISSISSIPPI STATE DENTAL ASSOCIATION.

At the annual meeting of this organization, April 8-5, 1900, the following officers were elected for the ensuing year: Pres., S. F. Carr; V.-P., H. T. Stewart; Sec., A. B. Kelly; Treas., J. E. Suber.

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### MICHIGAN DENTAL ASSOCIATION.

The annual meeting of this organization will be held at Kalamazoo, June 11-13, 1900, and the profession in this and neighboring states are cordially invited to be present.  
C. C. NOBLE, Sec'y, Detroit.

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### MASSACHUSETTS DENTAL SOCIETY.

The thirty-sixth annual meeting of this society will be held at the American House, Hanover street, Boston, June 6-7, 1900. The meetings, clinics

and exhibits will all be held under one roof. Good talent is promised for papers and clinics, and an especial feature will be a clinic on porcelain work by a prominent Philadelphia dentist. The exhibits will also be extensive. The hotel will give special rates and good accommodations. It is hoped that a large number will be in attendance, and a cordial invitation is extended to all reputable dentists to be present. E. O. KINSMAN, Sec'y, Cambridge.

#### CENTRAL DENTAL ASSOCIATION.

At the annual meeting of the Central Dental Association of Northern New Jersey, April, 1900, the following officers were elected for the ensuing year: Pres., H. S. Sutphen; V.-P., F. G. Gregory; Sec'y, N. M. Chitterling; Treas., Chas. A. Meeker; Ex. Com., J. S. Vinson, F. L. Hindle, C. W. Hoblitzell, J. W. Fisher, P. G. Voegtlen. N. M. CHITTERLING, Sec'y, Bloomfield.

#### ODONTOGRAPHIC DENTAL SOCIETY OF CHICAGO.

At the annual meeting of this society, March, 1900, the following officers were elected for the ensuing year: Pres., T. L. Gilmer; V.-P., L. S. Tenney; Sec., F. H. Zinn; Treas., G. N. West. Board of Directors—J. E. Nyman, 1901; A. B. Allen, 1902; G. B. Perry, 1903. Board of Censors—A. G. Johnson, chairman; F. E. Roach, J. B. Dicus. F. H. ZINN, Sec'y.

#### CHICAGO DENTAL SOCIETY.

The following officers were elected at the annual meeting of this society April 8, 1900: Pres., G. W. Cook; First V. P., G. B. Perry; Second V.-P., H. J. Goslee; Sec., E. MaWhinney; Cor. Sec., C. S. Bigelow; Treas., A. D. Clark; Librarian, H. W. Sale; member Board of Directors, J. E. Hinkins; Board of Censors, W. V.-B. Ames, chairman; C. N. Johnson, A. W. Harlan. C. S. BIGELOW, Sec'y.

#### VERMONT STATE DENTAL SOCIETY.

At the twenty-fourth annual meeting of this organization March 21-23, 1900, the following officers were elected for the ensuing year: Pres., H. Turrill; First V.-P., C. W. Steele; Second V.-P., J. A. Pearsons; Rec. Sec'y, T. Mound; Cor. Sec'y, Grace L. Bosworth; Treas., W. H. Munsell; State Prosecutor, G. W. Hoffman; Ex. Com., J. H. Jackson, H. Burbridge, R. H. Newton. The next meeting will be held at Montpelier March 20-27, 1901. THOS. MOUND, Sec'y, Rutland.

#### DENTAL COMMISSIONERS OF CONNECTICUT.

This board will meet at the Capitol in Hartford May 14 and 15, 1900, for the examination of candidates for license. Practical examination in operative and prosthetic dentistry at 10 a. m. May 14. Written theoretic examination evening of May 14 and day of May 15. Candidates holding temporary permits and coming under the rules in force prior to Jan. 1, 1900, must appear May 14 between 10 a. m. and 2 p. m. All persons desiring to practice dentistry in the state must apply to the recorder for revised rules and for the proper blanks. Blanks must be carefully filled in and sworn to, and

with the fee, \$25, filed with the recorder at least one week before the date of examination. G. L. PARMELE, Commissioner and Recorder, Hartford.

#### NATIONAL DENTAL ASSOCIATION.

The date of meeting of this organization has been changed by vote from June 26 to July 10, 1900, and the Association will convene at Old Point Comfort, Va. This is a very pleasant place in which to meet, and everything bids fair for a successful and profitable gathering. Application has been made for reduced fare on all the railroads, and the rates will be published in our next issue. We would especially urge upon the various state and local societies that they elect their full quota of delegates, and choose men who will attend the National Meeting. All those having papers which they wish to bring before the Association should communicate with the proper sections. J. N. CROUSE, Chairman Executive Committee.

#### LATEST DENTAL PATENTS.

- 645,845. Dental broach, Luther A. Young, St. Louis.
- 645,418. Dental separator, Edward Wishart, Waterford, assignor to J. W Ivory, Philadelphia.
- 645,608. Dental plugger, Charles Schake, Jr., Davenport, Iowa.
- 646,608. Artificial tooth, Herman R. Nehrbass, Hartford, Wis.
- 646,629. Device for regulating teeth, Wm P. Sugatt, Boston.
- 646,764. Artificial tooth, Thomas Steele, Red Bank, N. J.
- 647,010. Dental plugger, Frank L. Marshall, Boston.
- 647,400. Artificial denture, Arthur T. Glew, Germantown, O.
- 82,478. Design, artificial incisor tooth, Arthur T. Glew, Germantown, O.

#### ILLINOIS STATE DENTAL SOCIETY PROGRAM.

Annual meeting at Springfield, May 8-11, 1900. 1. President's Address, R. N. Laurance, Lincoln. 2. Report of Committee on "Dental Science and Literature," A. W. Harlan, Chicago. 3. Report of Committee on "Dental Art and Invention," H. J. Goslee, Chicago. 4. "Gold Crown with Solid Carved Cusps," J. E. Nyman, Chicago. 5. "A Few Thoughts on Prosthetic Dentistry," W. W. Moorehead, Alledo. 6. "Simple Method of Treatment of Fractures of Lower Jaw," W. A. Johnston, Peoria. 7. "Calcification a Controlling Factor in the Treatment of the Teeth," Grafton Munroe, Springfield. 8. "Habits Incident to the Dental Profession," G. W. Eutsminger, Carbon dale. 9. "Electricity Through the Ages and Its Value with Regard to Dentistry," G. E. Lob, M. E., Chicago. 10. "Pyorrhea Alveolaris, So-called," A. H. Peck, Chicago. 11. Operative Dentistry: A. "To Emphasize Some Things in Operative Procedures," D. M. Cattell, Chicago. B. "Improvements in Operative Dentistry During Recent Years, and the Betterments to be Expected in the Future," Edmund Noyes, Chicago. Dr. Black will open the discussion on both. The discussion on this subject not to be confined strictly to the paper read. 12. "Antiseptics," Elgin MaWhinney, Chicago. 13. Report of Supervisor of Clinics, J. E. Hinkins, Chicago.

CLINICS. 1. W. G. Clark, Chicago. Exhibit—Electro-plating apparatus.

2. P. A. Pyper, Pontiac. Contour filling, platinum and gold, central incisor.
3. J. O. Brown, Chicago. Contour filling, Watts' crystal gold. 4. J. N. McDowell, Chicago. Orthodontia, models and regulating appliances.
5. F. E. Roach, Chicago. Use of rubber teeth in crown and bridge work.
6. W. W. Tobey, Danville. Contour filling, Williams' untrimmed gold. 7. A. J. Elmer, Rochelle. Pyorrhea alveolaris. 8. Truman W. Brophy, Chicago. Surgical clinic. 9. W. F. Green, South Evanston. Table clinic. Root-canal filling, eucalypto-percha. 10. Geo. W. Cook, Chicago. Surgical treatment of pyorrhea. 11. Lee K. Stewart, Chicago. Continuous gum case. 12. J. E. Nyman, Chicago. Carving solid gold cusp. 13. W. V-B. Ames, Chicago. Some cements under the microscope. 14. J. R. Rayburn, Fairbury. Gold filling. Compound cavity in bicuspid, Power's engine mallet. 15. M. L. Hanaford, Rockford. Gold filling. Distal surface of cuspid. 16. J. W. Gluesing, Moline. To be announced. 17. G. A. Miller, Chicago. Seamless gold crown carved cusps. 18. W. F. Fowler, Chicago. Porcelain inlay. 19. Robt. Good, Chicago. Pyorrhea alveolaris. 20. A. F. James, Oak Park. Immediate regulation. 21. C. N. Thompson, Chicago. Porcelain inlay. 22. F. F. Fletcher, St. Louis. Gold Filling without Dam. 23. L. S. Tenney, Chicago. Gold restoration, anterior tooth. 24. F. V. Yorker, Chicago. Gold filling. 25. L. W. Nevius, Chicago. The use of nitrous oxid and extracting teeth.

J. E. HINKINS, *Supervisor of Clinics.*

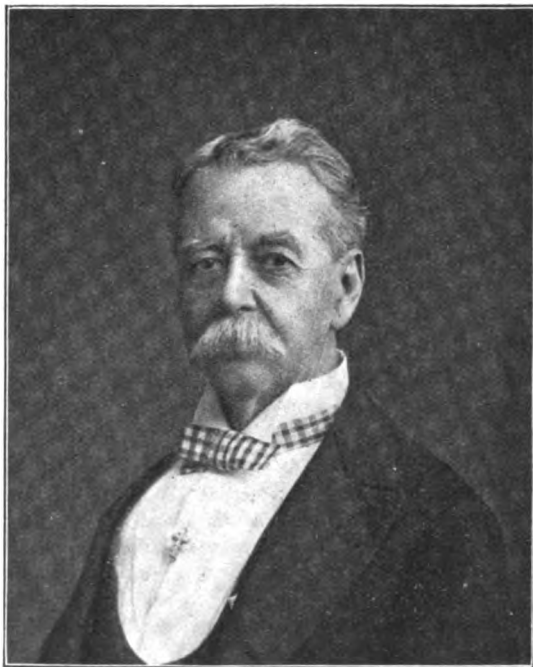
#### BANQUET TO DR. McKELLOPS.

On Saturday evening, March 24, 1900, the St. Louis Dental Society gave a complimentary banquet to Dr. H. J. McKellops. It was not his birthday nor any other anniversary which offered the members of that society an excuse for gathering. They simply felt that it was due one who for fifty-six years has been a practicing dentist, and who has done so much to uphold the dignity of his calling, and has labored so strenuously for its advancement, that his followers should show the esteem in which they held him and the regard they had for his lifelong services.

Dr. W. T. Lawrenz was toastmaster, and the following responded to toasts: "Our Honored Guest," John G. Harper; "The St. Louis Dental Society," A. H. Fuller; "The Sign of the Cross," (referring to the diamond-studded gold cross which Dr. McKellops always wears on his shirt-bosom), M. C. Marshall; "How to Regulate Him," E. H. Angle; "The Typical Professional Gentleman of the Old School," Wm. Conrad; "Good Fellowship," M. R. Windhorst.

The committee comprised Wm. Conrad, W. M. Bartlett, F. F. Fletcher, De Courcay Lindsley, B. L. Thorpe, H. M. Hill. The menu cards, which were very artistically devised, contained a splendid likeness of the guest of the evening, which we here reproduce. There was nothing ostentatious about the gathering, but the room was tastefully decorated and banked with flowers. Each one present strived to outdo the other in rendering homage to Dr. McKellops, and good fellowship was the keynote of the function. Those present included: H. J. McKellops, H. F. Lawrenz, A. H. Fuller, A. J. Prosser, F. F. Fletcher, O. H. Manhard, B. L. Thorpe, M. R. Windhorst, E. H.

Angle, J. B. Newby, De Courcey Lindsley, W. M. Bartlett, J. G. Harper, J. H. Kennerly, M. C. Marshall, H. M. Baird, H. M. Hill, William Conrad, T. L. Pepperling, Geo. A. McMillen, C. J. Tibbets, John S. Marshall, H. A. Pullen, W. G. Cox, P. H. Morrison, C. D. Lukens, C. F. Schumacher, James P. Taper, F. H. Bond, S. C. Nifong, W. A. Roddy, O. J. Fruth, D. O. M. le Cron, A. D. Fuller, Burt Barry, A. Flickinger, P. H. Eisloeffel, J. G. Pfaff, C. P. Pfaff, Leo McKellops, H. Prinz.



*H. J. McKellops*

Dr. H. J. McKellops was born at Salina—now Syracuse—N. Y., in 1829 and came to St. Louis when only eleven. Soon after he was a page in the Missouri House and there earned the money which later took him to the Missouri University, where he stayed for awhile and then returned to St. Louis in 1844. Soon after he went into the City Registrar's office, and in 1846-7 studied in the old St. Louis Medical College, then took up dentistry, and soon after opened an office on Fourth street. He has been president of numerous societies, was active for years as a militiaman, was in the Mexican and Civil Wars, and was in Frost's expedition against the bushwhackers in the early days. He has the courtly manners of the old-time gentleman and is rightly termed the "Chesterfield of the dental profession."

# FINAL REPORT OF THE LAW COMMITTEE OF THE NATIONAL ASSOCIATION OF DENTAL FACULTIES.

*To the Editor:*

It is well known to the members of the dental profession, especially those interested in dental education, that in April, 1899, the Wisconsin State Board of Dental Examiners refused to register diplomas from the Chicago dental colleges and other schools, as the law provides. The provision of the law is that the board shall at all times issue a license to any regular graduate of any reputable, legally incorporated dental college, without examination, upon the payment of the registration fee. After making inquiry of the secretary of the board as to the reason why the diploma of his client was not registered, Attorney Quarles, who had been retained in the case, received the following reply:

"MILWAUKEE, April 15, 1899. . .

"Hon. J. V. Quarles, Milwaukee, Wis.

"DEAR SIR:—I am authorized to say from instructions received from a member of the Committee on Colleges of the National Association of Dental Examiners, that if the college you represent accepts all the rules as laid down by the National Association of Dental Examiners, in regular form through that body, that this board will, upon the receipt of such knowledge, issue licenses to regular graduates of said college.

(Signed)

"H. W. CARSON, *Secretary.*"

After receiving the above letter, Dr. P. T. Diamond, a graduate of the Chicago College of Dental Surgery, brought mandamus proceedings to compel the board to accept his diploma. The board moved to quash the proceedings, which motion was denied by the court, in a vigorous decision handed down by Judge Sutherland of the Superior Court of Milwaukee County, Wisconsin. Summing up the case in regard to the standing of the college, the judge makes use of the following language:

"The reputation in this case shows that among intelligent men, whether members of the dental profession or not, the Chicago College of Dental Surgery must be regarded as a reputable institution. \* \* \* Therefore, without difficulty the court reaches the conclusion that the motion to quash the mandamus proceedings must be denied."

The action of the board was based on the ground that those schools refused to subscribe to a rule passed by the National Association of Dental Examiners, regarding the preliminary educational qualifications of students, the colleges giving as a reason their unwillingness to accept the interference of the boards in a matter which was outside of their proper function.

The National Association of Dental Examiners, of which the Wisconsin Board was a member, at their meeting at Niagara Falls, in August, 1899, rescinded the rule which was the cause of the controversy, and passed a resolution adopting, in substance, the rule governing preliminary educational qualifications of students, which was adopted in 1898 by the National Association of Dental Faculties, and it was hoped that henceforth the two national bodies would work in concert and harmony. In adopting this resolution the National Association of Dental Examiners recommended to the va-

rious state boards that all the schools belonging to the National Association of Dental Faculties be placed on the recognized list, and that the graduates of those schools be licensed, and that all litigation cease. In all states where difficulties had arisen regarding the registration of diplomas of graduates of schools belonging to the National Association of Dental Faculties the trouble was at once terminated and licenses issued, except in the State of Wisconsin. The representative from the Wisconsin Board pledged himself at Niagara Falls to return home and do all in his power to terminate the litigation. The week following the National Association meeting the Wisconsin Board, with their attorney met by appointment the representatives of the Chicago College of Dental Surgery and the plaintiff in the case against the board with his attorney, and after a conference the representatives of the board informed the representatives of the college that the members of the board had voted unanimously to continue the litigation.

On August 18, 1899, the following letter was written by Senator J. V. Quarles, attorney for the complainant, to Dr. T. W. Brophy, dean of the Chicago College of Dental Surgery:

*"Dr. T. W. Brophy, Chicago.*

"DEAR DOCTOR:—As you are aware, a meeting of the state board of dental examiners took place yesterday in this city, for the ostensible purpose of carrying out the recommendation of the National Board so explicitly made at its meeting at Niagara Falls. Nothing could be more plain and explicit than the recommendations of such National Association, which ought to be looked upon as a command by members thereof.

"I have to report, however, that our state board has assumed to be wiser than the national organization, and has positively declined to follow or respect the mandate of the central body. The state board refuses to recognize the diplomas of your college and all others similarly situated, and leaves no course open but to continue the litigation. We shall therefore, unless ordered to the contrary, embrace the first opportunity to crowd the case to a final hearing, and allow the National Board to deal with its recalcitrant members.

"Very respectfully yours,

(Signed)

"QUARLES, SPENCE & QUARLES."

Preparations were then made for a vigorous prosecution of the case. The Law Committee of the National Association of Dental Faculties, which was created at the Niagara Falls meeting in August, 1899, for the purpose of taking charge of this litigation, as well as any other litigation involving the Association or any college holding membership therein, held a meeting in Chicago, October 14, 1899, and after Drs. Barrett and Morgan of the committee held a conference with the members of the Wisconsin State Board, the latter agreed to license graduates of the Chicago colleges and all schools belonging to the National Association of Dental Faculties. November 6 the agreement was consummated. November 7 the following letter was received by the dean of the Chicago College of Dental Surgery:

*"Dr. T. W. Brophy, Chicago, Ill.*

"DEAR SIR:—After great tribulation, regarding matters of detail, I am glad to report to you that the board has finally decided to conform with the

provisions of the Dental Law of Wisconsin, abide by the ruling of the National Association of Dental Examiners, and license Chicago graduates and all other graduates from schools holding membership in the National Association of Dental Faculties; thus admitting that, in their action in refusing to license these graduates from April 11 to November 6, 1899, they were in the wrong. Everything consequently in the Diamond mandamus case has been brought to a satisfactory conclusion.

"The injustice the Wisconsin State Board of Dental Examiners has done your graduates, yourself and the many schools involved, cannot be easily forgotten, but our success in securing all we contended for is an assurance of the justice of our cause.

"Dr. Diamond's license has been issued, on our assurance that he would discontinue the case. The stipulation to withdraw the suit has been signed by both parties; the whole matter is now closed up, and the litigation is a thing of the past.

Yours truly,

"QUARLES, SPENCE & QUARLES."

Signed, { A. O. HUNT,  
W. C. BARRETT,  
HENRY W. MORGAN,

Law Committee of the National Association of Dental Faculties.  
November 22, 1899.

#### TO THE DENTISTS OF WISCONSIN.

MADISON, Wis., March 24, 1900.

A most remarkable document has appeared lately in several dental journals, and has also been mailed, in pamphlet form, to the dentists of Wisconsin under cover of the business envelope of Dr. Truman W. Brophy, dean of the Chicago College of Dental Surgery.

This document purports to be an official report of the Committee on Law of the National Association of Dental Faculties (and up to the present time has not been disowned by them). It contains a version of the manner of settlement of the mandamus suit brought by the Chicago College of Dental Surgery, in the name of one P. T. Diamond, against the Wisconsin State Board of Dental Examiners, which is so untruthful, and intentionally misleading, as to facts and conclusions, that I deem the time to have come when you are entitled at the hands of your state dental board to the *real* facts and conclusions as they exist to-day.

Last August, at Niagara Falls, the two national bodies, viz.: the National Association of Dental Examiners and the National Association of Dental Faculties, after a week of conference, jointly established a minimum educational prerequisite for matriculation in dental colleges, and recommended "that all litigation (on that subject) be withdrawn."

The Wisconsin board could not withdraw a suit brought against itself, and so awaited the motion of the Chicago College toward obeying the joint agreement and withdrawing its suit.

The first, last and only proposition from the plaintiff or colleges concerned ever presented to this board, or any member of it, as a basis of withdrawing



their suit against this board, except such as would imply an unconditional surrender of the entire contention on our part (an action never considered for a moment by us), was the following document (Exhibit A) presented to me personally at my office in Madison on Oct. 16, 1899, by two members of the Committee on Law of the National Association of Dental Faculties, viz.: Henry W. Morgan, dean of Vanderbilt University of Nashville, Tenn., and W. C. Barrett, dean of University of Buffalo, who informed me they came empowered by the Chicago College, et al., to settle the suit.

## EXHIBIT A.

CHICAGO, Oct. 14, 1899.

On the part of the Chicago College of Dental Surgery and Northwestern University Dental Department, we hereby accept the terms of agreement made at Niagara, between the committees representing the National Association of Dental Faculties and the National Association of Dental Examiners in August last, to carry out all its provisions in good faith, and at once to discontinue all litigation for which we are in any manner responsible, immediately upon its acceptance, with the like stipulations on the part of the Dental Examining Board of the State of Wisconsin.

CHICAGO COLLEGE OF DENTAL SURGERY,

TRUMAN W. BROPHY, *Dean*

NORTHWESTERN UNIVERSITY, DENTAL DEPARTMENT,

BY THEODORE MENGES, *Secretary*.

(A true copy, HENRY W. MORGAN, Oct. 17, '99.)

I at once executed and gave into their hands the following agreement (Exhibit B) which they declared to me to be entirely satisfactory, and to which Dr. Morgan, a few days after, informed me by letter, he promptly received either the signature or approval of *all* the members of the Wisconsin board, making the agreement unanimous.

## EXHIBIT B.

MADISON, Wis., Oct. 16, 1899.

TO HENRY W. MORGAN and W. C. BARRETT, of the Committee on Law, National Association of Dental Faculties.

*Gentlemen*—After the mandamus suit against the Wisconsin Board of Dental Examiners shall have been withdrawn, I will cast my vote and use my influence for the immediate acceptance by said board of the standards and rules jointly accepted and passed by the National Association of Dental Examiners and the National Association of Dental Faculties at Niagara, in August, 1899.

CHAS. C. CHITTENDEN.

I hereby subscribe to the within statement as made by Dr. C. C. Chittenden.

W. H. CARSON.

I accept and approve the within statement of Dr. C. C. Chittenden.

C. C. WENTWORTH.

(A true copy, HENRY W. MORGAN, Oct. 17, 1899.)

The following correspondence explains itself:

MADISON, Wis., Oct. 29, 1899.

MY DEAR GEN. DOE:

The inclosed letter from Dr. Henry W. Morgan of the Faculties Law

Committee was just received. I also inclose correct copy of agreement signed by the Wisconsin Board on which the withdrawal of the case is predicated.

Will you kindly look to it that the integrity of the Wisconsin law as understood and administered by our board is preserved intact in any case, as regards the method and manner of such withdrawal. Let the plaintiff do the withdrawing.

Feeling sure you understand just what will be the best manner of conserving our interests I leave this matter in your hands, and remain,

Yours very truly, CHAS. C. CHITTENDEN,  
President Wisconsin Board of Dental Examiners.  
MILWAUKEE, Nov. 6, 1899.

C. C. CHITTENDEN, D.D.S., Madison, Wis.

*My Dear Doctor:*—I enclose you copy of stipulation entered into this day by Senator Quarles and myself in the Diamond case. (Exhibit C.) The discontinuance of the suit was based upon the letter signed by yourself and other members of the State Board, addressed to Henry W. Morgan and W. C. Barrett, of the law committee of the National Association of Dental Faculties, under date of October 16, 1899, and was brought about in pursuance to your instructions in your letter to me dated October 29, 1899, in which you directed that the plaintiff should be required to withdraw his case before anything was done on the part of the board, and charged me to see that the integrity of the Wisconsin law, as understood by the board should be preserved intact. This I attempted to, and think I did accomplish.

Very respectfully yours, JOSEPH B. DOE.

EXHIBIT C.

Stipulation for discontinuance. Made Nov. 6, 1899.

Superior court,—Milwaukee county.

State of Wisconsin, ex rel. Peter T. Diamond, *plaintiff*.

vs.

R. G. Richter, C. C. Chittenden, C. C. Wentworth, W. G. Oliver and W. H. Carson, as state Board of Dental Examiners of the State of Wisconsin, *defendants*.

It is hereby stipulated and agreed by and between the parties to the above entitled action that said action be and the same is hereby discontinued without costs to either party.

QUARLES, SPENCE & QUARLES, *Plaintiffs' Attorneys*.  
JOSEPH B. DOE, *Defendants' Attorney*.

The next day being November 7, 1899, the Wisconsin Board carried out its agreement with the Committee on Law of the National Association of Dental Faculties by unanimously passing the following preamble and resolutions (Exhibit D) and also on that date issued a license to P. T. Diamond on his presenting the proper affidavit, executed in Chicago by him on Nov. 7, on a blank form procured from Secretary Carson by Sen. Quarles, after suit was withdrawn.

EXHIBIT D.

WHEREAS, The mandamus suit brought against this board on behalf of the

Chicago College of Dental Surgery, the Northwestern University Dental department of Chicago and other schools in the name of P. T. Diamond has been withdrawn by them from the courts without costs, therefore

*Resolved*, That in the judgment of this board, so far as preliminary educational requirements are concerned, only such dental colleges are reputable as require of students seeking admission, as a minimum preliminary educational requirement, a certificate of entrance into the second year of a high school, or its equivalent, the preliminary examination to be placed in the hands of the State Superintendent of Public Instruction. And

*Resolved*, That hereafter this board issue a license to practice dentistry in the State of Wisconsin, without examination by this board, to any person tendering the proper fee and duly presenting to the board, or its secretary, a certificate of graduation or diploma from a regularly incorporated dental college requiring the minimum preliminary education above mentioned, provided the college issuing such certificate of graduation or diploma be, in the judgment of the board, reputable in all other respects

From the foregoing you will readily be enabled to understand that the efforts of this board to advance educational standards have not been made in vain.

In the past, colleges in the United States that so desired could matriculate whomsoever they chose on whatever credentials they chose, and were accountable to nobody. To-day there exists a national, iron-clad agreement between the colleges and examiners to the general effect that *no school shall be considered as "reputable" which does not require as an educational prerequisite for matriculation, "a certificate of entrance into the second year of a High School, or its equivalent, the preliminary examination to be placed in the hands of the State Superintendent of Public Instruction."*

This was the compromise on which our late contention was settled. It has taken a good deal of time and some courage to accomplish all this, but we feel that the result is worth it all; and from present indications the time is close at hand when educational standards, curriculum and length of course will be so advanced as to place our beloved profession in the very van of the procession.

This statement is prepared and sent you by authority of the entire Wisconsin State Board of Dental Examiners. CHAS. C. CHITTENDEN, *President*.

The following letter, just received from our attorney, best sets forth the present state of affairs as regards the board's interpretation of the Wisconsin law in respect to their judicial powers and responsibilities in educational standards:

SPARTA, Wis., March 21, 1900.

DR. C. C. CHITTENDEN, Madison, Wis.

*My Dear Doctor:*—We are at last in a way of securing a final determination by the Supreme Court of the legal questions the board wishes to have settled, in the quickest, easiest and cheapest way possible.

Last night we argued the demurrer in the Rice case and Judge Wyman, with much hesitation and uncertainty, sustained the demurrer.

I secured a stay of proceedings in order that we might appeal to the Supreme Court.

We can get a decision upon, and interpretation of our statute at the next term at Madison, which begins in August.

The only question to be decided is "Did the board, in requiring an educational preliminary as a necessary element of *reputability*, exceed its powers?" This is the question we all want settled. If the Supreme Court is against us, the law must be amended. If with us, the controversy is at an end.

Very respectfully,

JOSEPH B. DOE.

## News Summary.

A. DEVILBISS, a dentist of Decatur, Ind., died April 8, 1900.

FLORENCE COVERT-MILLER, a dentist of Chicago, died April 4, 1900.

J. H. NELSON, a dentist at North East, Md., died suddenly March 19, 1900.

UTAH DENTAL EXAMINING BOARD is after the illegal practitioners in that state.

WM. A. MOORE, a dentist at Benicia, California, died of heart failure March 21, 1900.

C. S. ROEVER, 24 years of age, a dentist in Brooklyn, died April 4, 1900, from appendicitis.

G. S. PEARCEY, a prominent dentist of Jackson, Tenn., died suddenly from pneumonia March 23, 1900.

A. S. DUVALL, who thirty years ago practiced in Fayetteville, Tenn., died March 26, 1900, at Lawrenceburg.

BROKEN TOOTH.—"If a man has a broken tooth it keeps him busy keeping his tongue out of it."—*Wash. Dem.*

POWER OF X-RAYS.—"An X-ray specialist is going to marry one of his patients. The query is, what he could have seen in her."—*Somerville Jour.*

LOSING FALSE TEETH.—"The question is: Does a man with false teeth lose control of them in a moment of excitement? Yes, if they are not paid for."—*Ex.*

APPROPRIATE NAME.—A dentist in Chicago is blessed with the name of "Leggo." When he is extracting teeth it is easy for his patients to properly address him.

H. T. MANLOVE, 68 years of age, died at Logansport, Ind., April 2, 1900. He was one of the oldest practicing dentists in the state, having been in Logansport for 47 years.

IOWA AND INDIANA BOARDS AT WORK.—These two organizations brought charges recently against two dentists in their respective states who were practicing without licenses.

OPPORTUNITIES IN NICARAGUA.—The consul writes to the state department that American physicians, surgeons and dentists may find remunerative employment in that country.

**JACKSON (MICH.) DENTAL SOCIETY** on April 8, 1900, elected the following officers for the ensuing year: Pres., W. E. Merritt; V.-P., F. W. Winchester; Sec. and Treas., F. E. Robinson.

**THE GENTLE SEX.**—"Dr. Mary — is more than getting her share of the dental business, because she is more gentle than the man dentist. See her ad. on page 8."—*Aurora (Ill.) News*.

**CHARLES T. NOYES**, a Chicago dentist and Christian scientist, died April 1, 1900, from organic disease of the heart. Two Christian science healers attended him but failed to give relief.

**UNSOPHISTICATED.**—"You always patronize young dentists, I notice, Mr. Higgins."

"Yes; they are timid about making big bills."—*N. Y. Lancet*.

**GRAND RAPIDS (MICH.) DENTAL SOCIETY** at its annual meeting, April 8, 1900, elected the following officers for the ensuing year: Pres., L. F. Owen; V.-P., W. A. Dorland; Sec., W. A. Rawson; Treas., H. D. DeWar.

**SOUTH DAKOTA STATE BOARD OF DENTAL EXAMINERS** will meet at Vermillion May 16, 1900, and at Lead, June 6.

G. W. COLLINS, Sec'y, Vermillion.

**BOUND AND GAGGED HIMSELF.**—A dentist's assistant at Laporte, Ind., bound and gagged himself in his employer's office, and when released claimed that a burglar had robbed the safe of gold and notes to the value of \$600, which were missing.

**TAKE HEED.**—Watts: Doctor, do you believe that the use of tobacco tends to shorten a man's days?

Dr. Bowless: I know it does not; I tried to quit once, and the days were about eighty hours long.

**FALSE TEETH CAUSE DEATH.**—A farmer near Steubenville, O., accidentally swallowed a plate holding two false teeth, April 8, 1900. It lodged in the larynx. An operation was performed and the plate removed, but an abscess developed from which he died.

**ELECTRIC LAMP DANGER.**—In lighting electric lamps it is a wise precaution to turn the head away, as a man in England recently was partially blinded by the electric light bulb exploding when the current was turned on, as the glass embedded itself in his eye.

**ILLINOIS STATE DENTAL SOCIETY MEETING.**—If you expect to attend this convention at Springfield May 8-11, and we trust every dentist in Illinois and adjacent states has that intention, the Chicago & Alton R. R. offers in every way the best accommodation and service.

**THIRD DISTRICT DENTAL SOCIETY OF NEW YORK STATE** elected the following officers April 17, 1900: Pres., C. H. Bird; V.-P., G. A. Sullivan; Sec'y. M. J. Barrett; Treas., J. W. Canaday; Correspondent, F. LeG. Ames; Ex-Com., J. W. Hine, F. F. Hawkins, C. E. Allen.

**VALLEY DENTAL SOCIETY** held its annual meeting and banquet at Springfield, Mass., April 19, 1900, and elected the following officers: Sec'y, A. J.

Flanagan; Treas., C. S. Hurlbut, Jr.; Ex. Com., P. W. Soule, D. H. Allis, W. H. Spencer; Councillor to state society, G. A. Maxfield.

**EASTERN COLLEGE OF PAINLESS DENTISTRY.**—A concern with the above name at Pittsburg has made application for a charter, but several prominent dentists have filed exceptions, on the ground that the incorporation would evade the acts of assembly and should not be allowed.

**EARLY TO BED** and early to rise does very well with preachers and guys, but makes a man miss all the fun till he dies and joins the old stiff that are up in the skies. Go to bed when you please, and lie at your ease, and you'll die just the same from a Latin disease.—*Gillard's Med. Jour.*

**CROWDED.**—The Back Bay district of Boston, an area a mile long by one-third of a mile wide, contains 401 physicians and surgeons and 109 dentists. Of the doctors, 271 have some specialty. The population of the district is 20,000. This gives a doctor for every fifty people.—*Med. Age.*

**SANDUSKY, O., DENTISTS ORGANIZE.**—It is understood that their object is to protect themselves against those people who change dentists frequently and forget to pay any. The following officers were elected: Pres., E. J. Waye; V.-P., A. F. Miller; Sec., J. K. Douglas; Treas., C. D. Peck.

**DANGER IN EXTRACTION.**—While extracting a tooth a dentist in Ohio had a fragment fly off and imbed itself in the ball of his left eye. A dentist in Kansas had a molar slip through the forceps and strike him in the eye, impairing the sight for some time. Moral. Do not do so much extracting.

**CONSUMPTION CURED BY COUGHING.**—A woman in Dodge City, Kan., who had been given up to die, as physicians diagnosed quick consumption, coughed up a broken piece of tooth which had gone down her throat some time before during extraction. In a few days her lungs seemed to be normal again.

**SOUTHERN MINNESOTA DENTAL SOCIETY** at its annual meeting, April 11, 1900, elected the following officers: Pres., Frank James; V.-P., C. A. Palmer; Sec., A. C. Rosenquist; Treas., M. B. Wood. C. N. Johnson of Chicago, who delivered a series of lectures during the meeting, was made an honorary member.

**TO STOP BLEEDING FROM TOOTH CAVITY.**—A part of a tablet of mur. tr. of iron crowded into a cavity where a tooth has been extracted and troublesome bleeding follows, will stop it immediately. The tablet swells to fit the cavity and the acid iron coagulates. No cotton is needed. W. H. Judson, M. D., in *Medical World*.

**STATE HOSPITAL NOT LIABLE FOR NEGLIGENCE.**—A public corporation, such as a state hospital for the insane, which exercises exclusively governmental functions, the supreme court of appeals of Virginia holds, in the case of Maia, administrator vs. Directors of Eastern State Hospital, is not liable for the negligence of its agents.—*Jour. A. M. A.*

**WHY HE GOES ELSEWHERE.**—You have a dentist in the same office with you, yet I notice you go to some one else to have your teeth fixed." "True," replied the physician. "I cut a felon out of his finger once after telling him

to look pleasant and not mind the trifling pain, and I would rather not give him the chance to get back at me."—*Chicago Post*.

**FIFTH DISTRICT DENTAL SOCIETY OF NEW YORK STATE**—At the semi-annual meeting of this organization, April 11, 1900, the following officers were elected: Pres., W. F. Tremaine; V.-P., C. H. Barnes; Treas., J. C. Curtis; Cor. Sec., J. H. Dower; Librarian, F. R. Adams; Board of Censors, F. D. Nellis, S. B. Palmer, A. Retter; delegates to State Society, S. Slocum, J. C. Benz.

**MAGNIFICENT TEETH.**—A man presented for examination and the dentist examined his teeth with admiration. "What do you think of them?" asked the patient. "Magnificent! magnificent!" was all the dentist could say. "Then you do not find anything to do to them?" "To do to them? why there are four to be pulled, six to be filled and three to be crowned," said the dentist.

**DR. EVANS' MILLIONS MAY BE TIED UP FOR MANY YEARS**—It seems that article 16 of the will provides for the formation of a corporation to carry out the testator's desires, and as this forms a trust, the will, which must be settled in the French courts, comes into opposition with the old Napoleonic law of 1803, which is an anti-trust law. The litigation over this point may therefore consume several years.

**DON'T PROCRASTINATE.**—We feel in sympathy with the Dakota editor from whom we quote the following: "Last week a delinquent subscriber said he would pay up if he lived. He died. Another said: 'I will see you to-morrow.' He's blind. Still another said: 'I'll pay you this week or go to the devil.' He's gone. There are hundreds who ought to take warning of these procrastinators and pay up now."

**SALE OF DRUGS IN DEPARTMENT STORES.**—A bill to prohibit the sale of drugs in department stores in New York city has been advanced to the third reading in the state assembly. It was opposed on the ground that it was too radical, as under its provisions a department store could not even sell cough drops, and the constitutionality of the measure was also called in question. The bill was advanced to the third reading, however, by a vote of 65 to 40.—*Med. Record*.

**SARCOMA OF THE LOWER JAW**—W. H. Hudson states as particular points of interest: In Case I, the successful removal of the tumor and the uneventful recovery of the patient after the first operation. The necessity is also shown for the very early and thorough extirpation of sarcomatous growths if permanent relief is to be hoped for. In Case II is the proof that a sarcoma may develop from a tooth follicle in a person eighteen years of age. *Archives of Pediatrics*.

**ACUTE PERICHONDRITIS AND PERIOSTITIS OF THE NASAL SEPTUM OF DENTAL ORIGIN.**—Gustav Killian reports the case of a man thirty years old. Pain was severe and foul-smelling pus escaped from the left nostril. The left second incisor ached. The mucous membrane of the nasal septum was opened and dressed. Six months later the patient again appeared, the tooth

was extracted and a cyst, was disclosed. This was excised, and recovery followed.—*Munch. Med. Woch.*

**PRESERVATION OF RUBBER ARTICLES.**—Professor Krolikowski publishes the results of extensive tests which show that the best method of keeping rubber articles is in a 1 per cent solution of formol or zinc chlorid or a concentrated solution of boric acid. Red rubber keeps better than black, he asserts, other conditions equal. Rubber articles, he adds, should never be left exposed to the air or the action of cold.—*Jour. A. M. A.*

L. B. BRADLEY, 78 years old, and for fifty years a practicing dentist, died at Beloit, Wis., April 17, 1900. Of him Dr. C. A. Kitchen of Rockford, Ill., says: "I have had close and friendly relations with many dentists, but can recall none whom I held in greater esteem than Dr. Bradley. For many years he faithfully attended his professional duties, and made a host of friends. He was a man of strict integrity. 'None knew him but to love him; none named him but to praise.'"

**TO CONVERT AN OLD PLATE INTO A NEW ONE WITHOUT CHANGING THE ARTICULATION.**—Dr. Lossing's method is to take impression and a correct bite, run models and place on an articulator. Cut away all the old rubber except enough around the pins to hold the teeth in position, articulate them to the opposite teeth just as you want them, or any changes you might deem advisable can be made. Holding them in position, wax to model, invest and pack the same as in making a new set.

**CAUSE OF TOBACCO POISONING.**—H. Thomas has detected in tobacco smoke a poisonous, oily substance which produces violent headache, trembling, giddiness, etc. By treatment with a 2 per cent potash solution a phenol-like body may be separated which has an odor resembling creosote. To the presence of this oil the observed toxic effects of tobacco may be attributed, since it is known that those are not altogether dependent upon the proportion of nicotine in the tobacco.—*Scientific American.*

**INDICATIONS FOR OPERATIVE INTERVENTION IN ADENOID VEGETATIONS.**—Hagedorn of Hamburg (*Internat. Centralbl. fur Laryngol.*) very briefly and succinctly sums up the points as to when operative intervention is demanded as follows: 1. If the nasal breathing is not entirely free. 2. If frequent inflammatory processes arise in the throat. 3. If disturbances of the brain appear. 4. If nervous symptoms, such as convulsive attacks of cough, nocturnal enuresis, headache and aprosexia make their appearance.

**FINDER'S RIGHT OF POSSESSION.**—In Bridgeport, Conn., a street railroad company has brought a suit of replevin to recover a pocketbook which a passenger found on one of its cars. According to previous decisions, however, the railroad company is not entitled to recover the pocketbook. The general rule of law is that the finder of lost property has the right to the possession thereof as against everybody but the real owner, and it has been held in *Bridges vs. Hawesworth*, 7 Eng., L. & Eq., 424, a leading case, that the place in which a lost article is found does not affect this right to possession of the finder.



**CALDWELL-LUC OPERATION FOR RELIEF OF CHRONIC EMPYEMA OF THE ANTRUM** of Highmore promises to be the operation of choice for surgeons. The technique of the operation in the main consists in removing the anterior part of the inferior turbinate body on the affected side, then entering the antrum through the cuspid fossa by means of cutting forceps; then cleaning out the cavity by means of a sharp curet, followed by closing the mouth wound with catgut sutures and the establishment of drainage through the antral opening into the nose.—*Interstate Med. Jour.*

**GANGRENOUS STOMATITIS TREATED WITH ANTISTREPTOCOCCUS SERUM.**—W. C. Cahall reports a case of noma in a child seven years old suffering from typhoid fever. The disease was treated first by cauterization, then by the curet, and finally by an extensive cutting operation, but each time the gangrene reappeared. Then an injection of 10 c. c. of antistreptococcus serum was made and within twelve hours a line of demarcation formed, and within twenty-four hours the gangrenous part had disappeared, leaving a healthy-looking wound.—*Phila. Med. Jour.*

**BEECHER'S SARCASTIC WAS EFFECTIVE.**—In the Plymouth congregation there was at one time a woman who was a thorn in the flesh. She had a harsh voice and a stiff manner of speaking. Her long-drawn-out, dull discourses wearied the congregation, but Mr. Beecher was patient. At last he, too, reached the limit of endurance, and one evening when she sat down after talking nearly half an hour he arose, and in his deep tones said slowly: "Nevertheless, I still believe in women speaking in meeting." She spoke no more.—*March Ladies' Home Journal.*

**SPECIAL VARNISH FOR ALUMINIUM** is made by soaking 100 parts of gum arabic in 800 parts of liquid ammonia. This is heated about an hour and then allowed to cool and the varnish is ready for use. The aluminium to be coated is cleansed with soda and allowed to dry in a warm place, and after having covered the surface with the varnish it is heated in a furnace to a temperature 300 degrees Centigrade for a short time. After covering aluminium with a coating of this varnish it can be painted and polished without any fear of scaling off or cracking.—*Sci. American.*

**"TO LIE LIKE A DENTIST."**—Thirteen years ago Mr. Edmond DeGoncourt gave the origin of the above French saying. It was the Surgeon Lannelongue that explained it at a dinner. Two men fought in the street. One bit off the nose of the other, who picked his once useful ornament out of the gutter. In despair the unfortunate went up to the office of a surgeon-dentist who was opposite, a man named Carnajou. The dentist sewed on the nose and it stayed there. Carnajou boasted of his skill; no one at that time believed such an operation possible; hence the proverb; and Carnajou had such a reputation as a liar that a real surgeon who soon afterward made reapplications of flesh did not dare to mention them. Despres, a pupil of Dupuytren, fastened on a piece of finger, and when the patient came to show it after a week, Dupuytren looked at it, pulled it off and said, "it doesn't stick?" The Dictionary of the Academy made a distinction; it quoted (1835) the proverb: "To lie like a puller of teeth."

**ELECTIVE AFFINITY OF MICROBES FOR THE TISSUES.**—MM. Bezancon and Labbe (*Gaz. hebdomadaire de med. etc.*) have shown that when experiments are made with a microbe which has produced a lesion of some organ, this microbe acquires a kind of affinity for the organ in which it has developed. For instance, on infecting animals with staphylococci coming from a suppurative arthritis, they have shown that the staphylococcus, in place of producing general infection of the animals, induces suppurative arthritis in them. In two cases only did the staphylococcus pass into the general circulation and induce endocarditis. Then a fresh series of inoculations made with this last staphylococcus no longer induced arthritis, but endocarditis. By this affinity the epidemic manifestations of certain maladies produced by specific organisms may be explained—e. g., the contagion of *otitis media* to which M. Lermoyez has recently directed attention.—*N. Y. Med. Jour.*

**COMPARATIVE DEATH-RATES OF ABSTAINERS AND DRINKERS.**—According to the *Indian Medical Record*, of 4,384 deaths collected by the British Medical Association, divided for reference into five classes—namely, *a*, total abstainers; *b*, habitually temperate; *c*, careless drinkers; *d*, free drinkers; *e*, habitual drunkards—the ages of death of those in each class were registered, together with the cause and the average of death for each class computed, with the following result: Total abstainers lived on an average 51.22 years. Habitually temperate lived on an average 62.18 years. Careless drinkers lived on an average 59.67 years. Free drinkers lived on an average 57.59 years. Habitual drunkards lived on an average 52.08 years. This corresponds to the well-known ratio of mortality in the deadly west coast of Africa—where it is held that temperate persons have the lowest death-rate, tipplers the next lowest, while the death-rate of total abstainers is greater than either.

**VEIL AS A CAUSE OF REDNESS OF THE NOSE.**—The *Public Health Journal* calls attention to the abnormal redness of the nose developed by the wearing of veils in winter. The mechanical action of the rough texture upon the sensitive skin and the collection of watery vapor within its meshes are responsible for this. The blood is driven from the tip of the nose to the adjacent parts, causing the blood-vessels to become enlarged and conspicuous. Passing from a cold to a warm atmosphere aggravates the condition. Permanency of the effect is favored by wearing the veil a long time without airing, and by the cold and exposure. The treatment consists in discarding the veil, avoiding for a time sharp winds and great cold and sudden changes from a cold to a warmer atmosphere. General massage should be practiced, with applications of vaselin, lanolin, or cold cream, followed by some simple powder, talc or starch. The veil should not extend below the nose, nor should it be too heavy or too tight.

**TEETH AND EYES.**—Neuschuler (*Recueil d'Ophthal*, Aug. 1899) reports a case similar to one reported by his father ten years ago. The symptoms noticed on attempting to read were heat and pain about the internal angles of the lids, which gradually spread to the whole orbital cavity and thence to the superior maxilla, causing such irritation in the teeth that the patient (a

medical student) had to stop reading. There was also contraction of the lid, eyebrow and forehead. Glasses and nerve sedatives had given no relief. Right eye emmetropic, left myopic 1.25 D. On fixing with both eyes a pencil at 80 cm. distance all the symptoms above detailed came on. Glasses were ordered for near use. These have been used for more than a year without return of the symptoms. In the case reported by the father severe dental pain came on whenever the patient had to play from music at the piano; after some time it happened that insufficiency of the internal recti muscles was found to exist, and on correcting this the teeth symptoms entirely yielded.

**ERYSIPELAS VS. HORNETS.**—A physician in Tennessee was trying to practice medicine in a little village. For nearly four months his shingle had hung out and not a single patient had appeared. His money was getting down to the lowest ebb, and he was very much depressed, when one evening he heard the "rattlety, rattlety, bang" of a man riding up to his door at great speed, and he believed that a patient had actually come at last. In his eagerness he forgot his professional dignity, and rushed to the door and invited the man in with true southern hospitality. His visitor proved to be a robust farmer with a big swelling over the right eye, which showed a strong line of demarcation vividly red and angry, the redness running up into the hair. The visitor asked what the trouble was, and the doctor replied: "I am very sorry, my friend, but unfortunately it is a very bad case of erysipelas," whereupon the farmer jumped up, seized his hat, and turning to the door, remarked: "Ery-hell; that's a hornet!"—*Dr. R. H. M. Daubarn in Items.*

**PERIODIC DIPSO MANIA.**—P. C. Remondino (*Quart. Jour. Ineb.*) maintains that periodic dipsomania is due to some physical or psychic defect, and removal or change of occupation frequently destroys the tendency; that its periodicity may be due somewhat to a diathetic condition analogous to that of rheumatism or gout. In a majority of cases there is a tendency to self-limitation of the disease at certain ages, the age of strongest virility being the period of most frequent and serious attacks. Any physical condition disturbing the nervous system may be a factor in its causation, and it is more liable to occur in blond races. He believes it is due to ancestral habits of intemperance among these races. Our changeable climate favors its development, and occupation involving nervous strain, malaria, foul air, badly ventilated rooms, and other irregularities are all to be considered. The disease is liable to terminate in habitual drunkenness. Moral treatment is useless. Proper physical regimen, general observation to all hygienic laws, avoidance of irregular emotional strains, etc., are essential parts of the treatment.—*Jour. A. M. A.*

**URIC ACID AS THE CAUSE OF ASTHMA.**—Continued observations make the uric acid explanation of the very large majority of all cases of asthma, especially those accompanied by nasal polpi, appear more and more rational, and more and more refer these polpi to a place among the symptoms, removing them from their widely assigned place as the cause of asthma. This statement is one of the greatest interest in the study of asthma, and at once sug-

gests that polypoid degeneration of the ethmoidal bodies, in part or in whole, is in many cases the result of repeated uric acid irritation of these bodies. This statement will, I believe, some day be proven beyond question by the nasal microscopist. It is useless to look for the cause of a polypus in the growth itself; it must be sought for in the ethmoidal tissue from which it springs. Study of certain cases, supplemented by extended observation in a number of others, makes clear what might be expected—removal of nasal polypi no more cures asthma than would the removal of tophi about the joints of the fingers cure gout.—*Dr. John Dunn.*

**DENTISTS PAY THEIR DUES IN A GREAT HURRY.**—\* \* \* ‘For sometime past the dentists here have been lukewarm in their support of the Protective Association and did not seem to care whether it got along or not. Since Wednesday all has changed, and they are breaking their arms, so quickly do they cough up their dues. Dr. Robinson is the cause of it all.

‘A real nice man came into his office Wednesday. He removed his awning, sized Robinson up for hardware, and said: ‘Doctor, I represent the Crown Dental Company and Dr. James E. Low. I would like—’

‘Dr. Robinson had a patient down at the time and had his foot braced against his head while he pulled about a yard of teeth, but he immediately suspended operations in the trenches and rushed over to the nice man. ‘What’s that?’ shouted Robinson. ‘Why, doctor, I say I represent the Dental Crown Low—I mean I Low Crown Dental Company, you know, why—’

‘The dingbat, or forceps, or frog-sticker, or whatever it was in the dentist’s hand made a heliographic sort of movement in the air, and he whirled his hand around and yelled: ‘You get out of here!’ ‘Oh,’ said the representative of the C. D. and L. Co. ‘Now keep cool. I just wanted to know when you are going to settle.’

‘I’ll settle you right now if you don’t get out of here. Unnerstan’ me? Get out. I’m bigger man’n you. Lots bigger. You get out o’ here.’ The representative took a long standing jump and chased himself down stairs.

‘The dentists heard of it and they immediately began to pay up their dues, get the old musket oiled up, have new trap doors put in the stairs and mine the office floor. They also have a peculiar double-spavined walk, doubtless caused by being forced by circumstances to tote around two Krupp naval guns in their tobacco pockets. The representative of the dental trust will get a hot old reception in this town.

‘Since calling on Dr. Robinson the representative of the company has been seeking ‘settlements’ in a number of offices here. Each dentist upon whom he made his demands has calmly referred him to the Dentists’ National Protective Association. The representative told Dr. Clare L. Smith that dentists in many places had been arrested and their offices closed until the question of the patents had been decided. This cannot be done with members of the Association, and the trust will have to take up the fight with that organization. Some of the dentists outside of the association may be arrested, as that is the usual way the company has of dealing with cases where dentists will not pay.’—*Columbus (O.) Citizen.*

**CRITICISM IN AN EPITAPH.**—An esteemed Canadian correspondent writes to the *New York Medical Journal* as follows:

The following lines were brought by an aggrieved husband to the proprietor of a marble works to be inscribed on a tombstone. The evident object of the man was to injure the doctor rather than to perpetuate his wife's memory. Needless to say, the epitaph was not cut in marble, but filed away as an object of curiosity, and as such is presented to your readers *verbatim et literatim*:

"The deth of Jane. Smith whife of John. Smith aged 86 years Whose life Was haisened a Way By dr. Scalpel on the 16th of february 1882

"With out one moments Warning  
With Cloriform and  
the Nife i lost my life  
and O my infant dauter  
Was made a slauter the  
SCull Been put a sunder."

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## Original Contributions.

### FACING FOR VULCANITE DENTURES.

BY J. J. GROUT, D.D.S., ROCK RAPIDS, IOWA. READ BEFORE THE NORTHERN IOWA DENTAL SOCIETY, AT CLEAR LAKE, SEPT. 5-8, 1899.

There are few things that cause the dentist more worry and perplexity in the making of rubber dentures than procuring a presentable facing—something which will resemble the natural gum. Gum sections sometimes in a measure overcome the difficulty, but those using plain teeth are often dissatisfied with the appearance of pink rubber as a substitute for the natural gum. I have tried nearly all the different manufactures of pink rubber, but never have been able to secure one that was satisfactory. Bleaching improves, but after you have done all that human ingenuity can suggest you have an unsightly thing. I agree in a measure with Dr. Haskell's statement: "I will sacrifice looks to usefulness every time," so I employ plain teeth almost exclusively, necessitating the use of some substance to take the place of and resemble as nearly as possible the receded gum tissue.

When our patrons have long lips and show their teeth but little, pink rubber will serve the purpose very nicely; but when they have short lips, showing much of the teeth and plate, then is when we need something that will not disfigure to so marked a degree. We can only imitate nature, never excelling her, so it is our bounden duty to devise for our patients something that will restore to them as nearly as possible their natural condition and appearance, and oftentimes we can improve on nature where she has been dwarfed or deformed.

Porcelain continuous gum work makes the ideal plate, but it is so expensive that but few feel they can afford to possess one, so we must look for some substance that resembles it, is inexpensive, and can be easily applied to vulcanite. For the past six months I have been using continuous gum facing or compound. While it

may not be the ideal facing, it has proven satisfactory in my hands. The most expert of us at times are unfortunate enough to have the darker rubber show. By using the facing these spots may be covered and made slightly without the trouble of revulcanizing. It is easily applied and when thoroughly hardened will retain its color and form, and I believe will prove durable. It pleases my patrons and consequently increases the volume of my business, which is a pleasant feature. It should have from six to twelve hours in which to harden; placing it in the sun or some warm place will hasten the process. By using aluminum as a lining and continuous gum compound as a facing, we can make a plate that is healthy, cleanly and handsome, with little expense to ourselves or our patrons.

### DISCHARGE CAUSED BY TOOTH IN ANTRUM.

BY W. H. RISER, D.D.S., LANSING, IA. READ BEFORE THE NORTHERN IOWA DENTAL SOCIETY, AT CLEAR LAKE, SEPT. 5-8, 1899.

Last February a physician brought to my office an elderly patient who had been suffering for more than two years with pain in the right side of his face, which was considerably swollen. He also complained of a fetid discharge from the right nostril. For two years he had been in the hands of various physicians, but to no avail. All of them had been treating him for catarrh.

The physician who brought the patient to my office diagnosed the case as an abscess of the antrum, and in order that we might have free access, requested me to drill a hole through floor of same. Upon examination I found there was an opening through the floor even larger than was necessary for ordinary treatment. Further investigation disclosed something movable. The physician stated that it was a piece of bone he had separated from the maxilla in extracting the root a day previous, but he was of the opinion that it would unite again, and so did not wish me to do anything with it. I naturally did not concur in this opinion. The substance in question had the appearance of bone, and in any event had to be removed before a permanent cure could be effected.

After some little discussion I was permitted to remove the object, which was accomplished by means of an excavator and narrow-beaked forceps, and found it to be a cuspid tooth that had been lying across the opening in floor of antrum. It was slightly stained and looked as though it had once been erupted, but as it did not show

any wear one might have believed otherwise. The patient remarked that shortly before his trouble began, nearly three years ago, he went to a man traveling through the country selling patent medicines, to have the two bicuspid extracted, and was under the impression that the cuspid was taken out at the same time.

After removing the tooth I treated antrum as is usual in such cases, and in a short time had cured the case, so dismissed patient.

### PORCELAIN DENTAL ART.

QUESTIONS AND ANSWERS IN A CLINIC GIVEN BY W. A. CAPON, D.D.S., PHILADELPHIA, BEFORE THE MARYLAND STATE DENTAL SOCIETY, AT BALTIMORE, JANUARY 25, 1900.

Downie body when baked and worn in the mouth for some time appears to disintegrate about edges, not a mere chipping. Why, and do the high-fusing bodies act similarly? The only disintegration I have seen is the cement. I think there is no disintegration of the porcelain and have not seen it in either high or low fusing body, but what appears to be disintegration is in reality minute chipping of the edges. High-fusing bodies are less liable to this chipping, but much depends upon the edge preparation of the cavity.

Aside from glazing surface, making it a little more difficult to build body upon, what objection to fusing at each bake? There is no objection to thorough fusing at each bake, providing the color is not destroyed by too great heat.

Are the colors of high-fusing bodies as unstable as those of low-fusing? The chief recommendation in the use of high-fusing porcelain is the fact that it retains its color better and is therefore more reliable.

Give details of the "Midget" furnace and where obtained, also what cement is considered the best and freest from the two great defects—porosity and expansion?

The Midget used at my clinic to-day is made on the Bunsen burner principle with forced draught, and is capable of very high heat. It is made by a firm in Detroit, who have secured the right to manufacture from Dr. Land, the inventor. My experience with cement for inlay work is confined to two kinds—Justi's and the Harvard, both made in Germany.

Is it not your opinion that what is gained in exactness of fit in



the use of gold matrix is more than compensated by the opportunity the platinum foil offers in second burnishing and baking? The investment and gold foil do not allow this, the most important of all the steps in porcelain work, next to color. The use of gold for a matrix must be confined to a very low-fusing body, such as Jenkins' or any other kind that fuses at about 1800 degrees Fahrenheit. The investment holds it in position and protects it while porcelain is being fused. The platinum matrix does not require this care and is exposed to the heat the same as the body. Investment would be a detriment rather than of value (why?) The second burnishing of a platinum matrix is made necessary because shrinkage of porcelain has a tendency to contract the walls, particularly so if they are deep and paralleled. Small pieces of a broken porcelain tooth mixed with the body in first bake will obviate this shrinkage considerably.

Is there any advantage in investing gold matrices, save accidental change of form, with the view of preventing shrinkage? This question is answered by the last reply.

Will any investment material known to you prevent such shrinkage, which I believe is always to the centre? I do not think that investment of any kind can control the shrinkage of porcelain. I never saw a porcelain body that did not shrink during fusing, some much more than others, and with one exception there seems to be more shrinkage with the lower grades.

Is not platinum foil the very best material for matrices? I think taking everything into consideration that platinum is the very best material, no matter where it is used or what grade of filling is being fused. It is less liable to change of form in drawing from the cavity and can be fearlessly used in the hottest furnace. (Of course I bar that celebrated electric furnace at Niagara Falls that melts everything up to 7,000 degrees, just about 4,300 degrees more than is required for our work.)

Have you found any better way to anneal it than a steady glow away from the furnace? There is no better way than by heating a few minutes in the muffle, and the greater the heat the softer the foil, one of the reasons why second burnishing gives us better edges.

Do you use anything finer than the .001 foil? Platinum should not be finer than that because it breaks easier and is more liable to change of form, with no advantage in regard to joints.

How much darker do you use the color than the tooth to be matched? I use the same shade for both bakes. The color of the metal will interfere with knowing exact shade while it is in an unfinished state, so it is better to adhere to the sample color chosen.

In selecting colors when not in stock, which they rarely happen to be, to produce a proper shade or blend, do you make sample before baking or do you take a basal dark shade and then fuse a lighter shade over it? I have found the latter useful at the cervix in large fillings having two shades. It is simply impossible to be a very successful porcelain worker without the artistic tendency to mix and blend colors, therefore the name "Porcelain Dental Art" is particularly applicable to this branch of dentistry. The matching of the upper portion of a tooth frequently requires two shades and sometimes more. This will also apply to an approximal section running from neck to cutting edge.

Do you insist on a greater amount of care as to margins than in gold operations? The care is not greater but applied differently. Cavity margins for porcelain sections or inlays must not be beveled, but have edge straight and sharp so that there will be no overhang of porcelain, one cause of apparent disintegration and broadening of cement line.

Have you found it better to have porcelain even with or higher than the beveled enamel walls? It is aimed to have porcelain even with enamel walls. Slightly lower is preferable to higher both for safety and appearance. It is much easier to trim the enamel slightly without detriment to tooth or appearance than to trim porcelain to gain same results. Bobby Burns must have had porcelain inlays in his mind when he said—"The best laid plans of mice and men aft gang aglee."

Are your preparations "saucer-shaped" or with a little less than paralleled walls? Have paralleled walls if possible, saucer-shaped cavities are as little desired in this work as in any other kind of filling.

Do you prefer the roughening you mention to the hydrofluoric acid? I have never used hydrofluoric acid. Make undercuts whenever possible or roughen with corundum disks.

Do you believe the support of pins baked in the fillings as substantial as that of porcelain set well in the tooth? No, I prefer solid porcelain, both for strength of the section and attachment to the

tooth, and wherever possible I use a loop of platinum wire in preference to pins.

Do you obtain copies of cavities such as I mention, giving a good depth of porcelain entering between enamel walls? In the same manner as other cavities. Perhaps the questioner has the idea that metal matrix should cover every portion of the cavity surface; with gold it does, but with platinum it is impossible to have it so, and it is not necessary that it should.

Have you in extreme cases found copies in cement, swaged in plaster counter-die, more accurate or any help in obtaining matrices? I have never in any case had to use this means of getting a mould. My experience has proven that the only proper way to make a correct porcelain filling is to work directly on the tooth.

What is your method, in removing from cavity, of retaining pins in matrix when used without soldering, so that the foil may be readily stripped from corner to be placed? Is it reliably done by investment? The pins or wire loop are put in place before matrix is withdrawn from cavity, and are held there by a small quantity of porcelain paste, which absorb with a pellet of bibulous paper and carefully draw from position. This mode is tedious but better than investing and soldering, because even the smallest amount of solder deteriorates the porcelain, especially in high-grade material.

In that most difficult of all positions—the approximating surface of bicuspid—what is your experience as to durability of porcelain in occlusion? Shape and depth of cavity have much to do with ultimate success; plenty of space is imperative. They are the most difficult cavities of which to obtain an accurate impression and from which to withdraw the matrix.

What is your success with contour work, cutting edge and grinding surface? Excellent with contours. Cutting-edge sections depend upon amount of tooth to be substituted, a thin cutting edge is not reliable. Grinding surfaces I do not recommend, force of mastication is too great for a brittle substance like porcelain.

Why are many fillings porous at the bottom, even when solid and well glazed at the top? Overheating will cause porosity and make porcelain unfit for use where strength is the feature as much as appearance.

If trouble arises, have you any special method of removing fillings? A porcelain filling is very difficult to remove when well set,

and if some "Doubting Thomas" will try to cut one out he may become a convert.

What objection is there to keeping up the heat beyond the melting point? Overheating will destroy shade and reduce density of material.

Is the low-fusing body made by the Consolidated Company as strong for use in crown and bridgework as the higher-fusing bodies, especially as compared with the Downie? I think the strength of low-fusing material of various makes about equal, and as compared with the higher grades probably just as strong for certain kinds of crowns and bridges, providing there is considerable bulk of material.

In porcelain fillings is it always best to strip off the matrix (gold or platinum) before cementing into place? The matrix is always stripped from the porcelain, especially if the filling is small. If left on it acts as a groundwork and thereby changes the shade.

In compound cavities of bicuspid or molars is it ever well to make the filling in two sections—first, the approximal, then the grinding-surface portion? This question is asked because of the behavior of a very large compound filling I recently inserted in a lower molar. The porcelain seemed to be contracted in such a way that the gingival border of the filling and the grinding-surface end seemed to be drawn together so much that when put in the cavity after fusing only the points mentioned came in contact with the walls of the cavity. On rare occasions one may be forced to make two sections. As an illustration—the cervical margin of a cuspid, where the cavity runs from extreme mesial to extreme distal surface. The trouble mentioned in the question is liable to occur in such cavities and was probably caused by slight change in the mold when drawn from tooth. I do not recommend porcelain for such places and so answered in a former question.

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## DENTAL HISTORY.

BY CHAS. MCMANUS, D.D.S., HARTFORD, CONN. READ BEFORE THE NORTHEASTERN DENTAL ASSOCIATION, AT HOLYOKE, OCT. 17-19, 1899.

Even at the risk of being accused of monotonously descanting on a single subject, or slight variations of it, to the exclusion of more interesting papers, I shall bring to your attention the matter of a continued preparation for a history of dentistry. The "Committee on History" of the National Dental Association, after a good deal

of correspondence and consultation with members of the profession best qualified to give advice, made a preliminary report at the annual meeting at Niagara Falls last August—the curious will be able to find the report in the transactions.

It is to be hoped that a full history of dentistry may some day be prepared, and the subject will of course be considered by Section No. 6, "Teaching and History of the Dental Art," of the International Dental Congress at Paris next summer; but it is deemed advisable—I had almost used that popular but sneaking word, *expedient*—not to attempt too much. Earnestly as some of us desire the early publication of a history, there are several other matters of a semi-professional importance that take precedence—uniformity of laws, restraint of patents, dentists in the army and navy, a dental pathologist at Washington, reputability of college and examining boards, etc., etc.. We have every right to go slow! As Dr. Miller of Berlin wrote: "Of course a universal history of dentistry would be very interesting and valuable, but its compilation would naturally cost an immense amount of labor."

It is therefore proposed to limit the work to (1st) the accumulation of data with particular relation to the history of dentistry in America from the earliest period to the real beginning of the profession in this country, about 1840. (2d). The collection of all the interesting information possible from the older members of the profession. In reference to this feature Dr. J. Leon Williams of London writes: "There are men still living whose lives pretty well cover the whole history of dentistry in America, but with their passing away much valuable material would be irrecoverably lost."

Dr. William H. Trueman of Philadelphia, the greatest authority we have on the early history of dentistry in America, says: "I am very strongly impressed and would advise that the first effort should be made to make a history of dentistry in our own country . . . and I would begin with New England, for it was, I am persuaded, from Boston that dentistry has spread." It behooves some of us in New England to take an active part in this work, and it is with the hope of getting the members of the various state societies present at this meeting interested that I have presented the subject here, and intend later to bring it to the attention of the eastern state associations. Every state dental society—with its librarian and in many instances no library; its editorship often a sinecure; its

committee on this and that—should have a permanent *committee on history*, for history, good or bad, like the poor, we have always with us. As the state society is the real *unit* of the dental profession, so the history of dentistry in each state ought to be the unit for the full history of the profession in this country.

This was the idea at the time the World's Columbian Dental Congress took the matter in hand. State committees were appointed, a good deal of money was spent, a large amount of data was brought together, and the Publication Committee regretted that owing to the bulkiness of the work it could not be included as part of the transactions, and they expressed the hope that it might be published on some suitable, similar occasion when it could be brought down to the date of publication. I believe the time has come to make some use of that data, and I feel justified in stating that if the state societies will form responsible committees to take charge of the preparation of the local history of their respective states, the loan of that data prepared for the Columbian Congress may be obtained.

This matter is brought up before this association, not because any action can be taken here, but so that the idea may not be entirely unfamiliar to the members of state societies when it comes before them for future careful consideration.

### PRESIDENT'S ADDRESS:

BY CLINTON W. STRANG, D.D.S., BRIDGEPORT, CONN. DELIVERED BEFORE THE NORTHEASTERN DENTAL ASSOCIATION, AT HOLYOKE, OCT. 17-19, 1899.

I wish to congratulate our sister New England states on the harmonious relationship existing between the chief executives, the state associations and the examining boards. While in our own state the situation is deplorable, we can but believe that the vigorous and almost unanimous protest of the members of the state association against such intermeddling of politicians in the creation of our board of examiners, and this sentiment emphasized by a resolution passed by the National Association, will have a salutary effect upon those aspirants for honors whose chief recommendations and fitness lie along the line of political pulls.

Some one has said that a noble ancestry is an inspiration to noble endeavor, and it is true that every great nation has had its age of heroes whose splendid achievements have inspired later generations to worthy emulation. What is true in the history of nations holds

good in organizations and individuals, and with a deep sense of obligation we make proud reference to the ancestry of our Association. While the few that remain hold a warm place in our hearts, we cherish the memories of those who have joined the silent majority. If some will measure up to them in manipulative skill they do well; if a few in some respects reach a little higher, it is because "they stand upon the shoulders of great men." To-day we behold the spirit of the fathers in this generation, and the achievements in the past are an inspiration to greater attainments, which is apparent in all the activities pertaining to dentistry.

It seems to me, however, that so much has been done to train, educate and prepare young men for professional duties proper, that too little thought has been given a very important subject—one which confronts them at the beginning, is ever before them, and will remain to the end, yet how few suggestions are offered along this line, each student being left to work out his own destiny with fear and trembling. Dentists as a class are poor financiers, and it is probably due to the fact that in their early business career they are not subjected to the same training as the young man who enters a mercantile or manufacturing establishment, where the question of cost is scrupulously studied before the goods are put upon the market. Furthermore, from time to time the young dentist is cautioned against the danger of allowing himself to be influenced by mercenary motives. From a professional standpoint duty to his fellow men should prompt him to do the very best, regardless of any monetary consideration. From the philanthropist's standpoint these sentiments are beautiful, but we fear the indiscriminating have been led into the error of divorcing true business methods from their work.

It costs the young man several years' time and a large sum of money to become skillful in dentistry, and such preparation deserves proportionate remuneration in practice. The methods as generally followed at the present time are not calculated to educate public sentiment to give a just remuneration for professional service. While in all the large cities and good-sized towns there are to be found positive men, conscious of their ability, who can accomplish their ends, whatever be the plan of adjusting fees for service, the majority of dentists are following the old beaten track. Practically this means that the class of patients who are favored with good dentists, and who systematically take care of their teeth, help pay

the bills of those who though by nature equally well favored, are neglectful and unsystematic—recipients of skill and time without giving an equivalent for the same.

We believe the dental operator should regulate his charges according to the time required for a given operation, whether it be for an examination, for cleaning teeth, treatment, filling, or making a plate, and this system conscientiously adhered to will result in an equitable adjustment of fees for professional services. Why is it that the patients of so many dentists are suffering the premature loss of teeth and all the attendant discomforts occasioned by foreign deposits? Not altogether because that particular kind of work is not so fascinating as fillings, but because the established fee for that operation in most localities is so low that the work cannot be done properly without great sacrifice on the part of the operator, and the same principle applies to every department of dentistry. There are throughout our land to-day a host of men, educated and of ability, who have for many years been putting goods upon the market far below the cost of production, and this is evidenced by the approach of declining years and a financial condition sometimes worse than what it was before a practice was established. No man with a fair practice and good health has any moral right to reach middle life without having accumulated a substantial bank account. While to accomplish this may call for sacrifice along certain lines and a rigid adherence to business methods, it does not necessarily entail the sacrifice of a single one of those principles which combine to make a noble and self-respecting manhood.

As a profession we are still in our youth, but the time is upon us when, if we would stimulate the coming generation as we have been inspired by the past, it must be along the line of endowed literary institutions. Are we preparing to meet the obligation?

### **ELECTRIC ROOT DRIER AS AN AUXILIARY STERILIZER OF PULPLESS TEETH, AND LACTATE OF SILVER IN THE TREATMENT OF ALVEOLAR ABSCESS.**

BY H. W. MOORE, D.D.S., SANTA BARBARA, CAL. READ BEFORE THE SOUTHERN CALIFORNIA DENTAL ASSOCIATION, AT LOS ANGELES, OCT. 3-4, 1899.

Much has been written within the last thirty years upon the treatment of pulpless teeth, and the histological researches and experimental investigation pertaining thereto; yet the field is by no means



entirely explored, so remains a most interesting and profitable topic for discussion and investigation. Looking back it would seem that the progress made in this particular work dates from two distinct periods; first, the discovery of the part bacteria take in dental pathology, and its practical application to dental therapeutics (here it was that Miller laid the scientific foundation of dental disease, which has been so aggressively investigated by many others ever since, to result in more thoroughly establishing Miller's conclusion) second, the discovery of germicides specially applicable to dental use, and the invention of the electric root-drier, for the efficiency of this instrument in furthering the sterilization of pulpless tooth-structure cannot be overestimated. Heat is by far the most effective and reliable means of completely destroying bacteria, or of rendering them incapable of producing either their soluble diffusable poisons or noxious gas. It is to these products that in the light of experimental evidence it is safe to attribute all inflammation and suppuration resulting upon death of the pulp.

Dentin is extensively invaded by a soft plasmic material derived from the pulp by which it is nourished; this substance and temperature together offer a most favorable culture medium for bacteria. Now if these bacteria are not either destroyed or rendered harmless, what becomes of their poisonous products, provided the pulp-canal is thoroughly filled? Must they not necessarily pass off through the cementum, finally to be absorbed and eliminated by the adjacent tissues? and would not such a disposition of them most seriously interfere with tissue metabolism, resulting finally in an enfeebled condition of cells; and for relief would they not call out for mercy in the form of acute inflammation?

To render aseptic the interior tubular structure of an infected pulpless tooth is one of the most scientific, as well as difficult and uncertain operations, which confronts the dentist. This is due to comparatively inaccessible tissue becoming infected, which must be rendered absolutely aseptic, otherwise it matters not how skillfully the balance of the operation be performed, the whole operation must remain but a limited protection against early disintegration. Make it possible to apply without injury reliable chemical germicides, or germicides with great diffusability, to the utmost limit of the dental tubules and apical extremity of the pulp-canal; then thoroughly dry up the contents with an electric root-drier, thus removing all possi-

ble source of irritation of surrounding tissues from bacterial poisoning, and nature will assert herself. We shall then probably discover it to be one of the inherent physiological functions of cementation to guard against further invasion of bacteria by throwing up defence of the character of neoplasm in all channels of communications existing between vital and devitalized tooth-structure. However, is it not just to say that while dentists as a rule are admittedly progressive, they are not as yet governed in sterilizing infected pulpless teeth by an adequate knowledge of how scrupulously careful it is necessary to be in the observance of every possible antiseptic precaution, if the ultimate aim is to secure a condition which would be considered surgically clean by an expert.

No more forcible lesson can be taught a dental student of the absolute importance of cleanliness, and how difficult it is to be so from a surgical standpoint, than to have practical experience in bacterial culture, and I trust bacteriology will be made a more important feature in the dental students' curriculum than it has been heretofore.

Is it not a common practice with dentists, after having secured what seemed to be perfect sterility of a pulpless tooth-canal, to explore for further moisture with paper cones, made by rolling unsterilized bibulous paper between unsterilized fingers, it never occurring to them that they are employing most excellent means to infect the parts which a strenuous effort has been put forth to disinfect. Prove this statement by making the following simple test for bacterial growth: Take a boiled potato, cut it in half with a sterilized knife, then place it in a sterilized tube, with a sterilized cotton stopper; now after having prepared the bibulous paper cone by the usual method (between the fingers), take out the cotton stopper from the sterilized tube and simply touch the potato in the tube with the paper cone held in a pair of sterilized pliers; withdraw the cone, replace the stopper and set away the tube for about two days in a warm place; at the end of this time you will in all probability find a growth of bacteria on the potato so large as to be quite visible to the naked eye. This is what is called a colony, and it is just such colonies that play the mischief in pulpless teeth; hence the absurdity of using such unscientific means of testing for moisture; especially when this moisture, with the accompanying temperature, is an excellent culture medium for bacteria.

While we are aware that in the treatment of bacterial lesions it is bacteria-metabolic product we have for the most part to combat, we are also aware of the fact that numerous investigations have demonstrated that dead bacteria of many different species give rise to suppuration when injected subcutaneously, hence the importance in our manipulations of being exceedingly distrustful of forcing the minutest particles of foreign matter through the apical opening; for in such an event we may possibly be laying the foundation for future complications. It would therefore seem wise for us to keep the broach well within tooth-structure until this field is more fully explored. Too great precaution cannot be exercised in the treatment of infected teeth, for the reason that the intricate character of tooth-structure, their locations, various shapes and tortuous canals all contribute to make it very difficult to know at what particular stage of treatment absolute sterility has been secured; and still more so when we add to this the great resisting power bacteria have to chemical agents.

Let us see what accepted authorities say about this: Miller says—"If we wish to be sure that we have completely sterilized a layer of dentin with carbolic acid, for example, we must allow the solution to act at least three-quarters of an hour; nor does it suffice simply to moisten the surface with the acid, the whole cavity must be thoroughly bathed with it; simply wiping a cavity with carbolic acid and immediately drying it gives no guarantee whatever that any softened dentin present has become sterile."

Koch found that microorganisms were destroyed by different solutions of carbolic acid in the following order: A one per cent solution after fifteen days exerted no remarkable action; after seven days in a two per cent solution the spores were still active; when mice were inoculated with them a four per cent solution killed on the third day, and a five per cent solution killed with certainty on the second day.

Abbott says that a 1-1000 solution of sublimate does not always destroy staphylococcus aureus in fifteen minutes.

It should be remembered that these are laboratory tests with pure cultures, where every germ comes under the influence of the germicide. In a carious tooth the bacteria are entangled in foreign matter, which the disinfectant penetrates with great difficulty; there is probably also considerable moisture present to weaken the solu-

tion, hence it would appear that the time given to sterilize and mummify the infected tissue of pulpless tooth-structure in the treatment known as immediate root-filling is in many cases entirely inadequate.

To work in line of experimental evidence we must realize that we have an organism to destroy that is remarkably tenacious of life. We know also that these organisms are distributed throughout a tissue which is penetrated with great difficulty even with germicides of great diffusability, therefore it would seem much the wiser plan to repeat at different sittings the sterilizing and drying until there is satisfactory evidence that the best results have been secured.

A number of cases of persistent peridental inflammation have fallen into my hands within the last two years, and I have been remarkably successful in the treatment of them, which I attribute largely to the careful use of the Russell electric root-drier. The teeth treated were of such character that heretofore I would have had from time to time to remove the root-dressing because of persistent sensitiveness upon chewing, making fresh applications which relieved only for a short time. I might say that after thoroughly sterilizing and drying by other methods I am able with the root-drier to drive off moisture freely and visibly.

I have experienced much benefit from lactate of silver in the treatment of chronic abscess at the roots of teeth, succeeding with it where other remedies have failed. My mode of treatment is to take one part of the powder and 500 of water, then with a hypodermic syringe force the solution through the fistulous opening well into the abscess. I believe this will prove to be a valuable remedy in dental therapeutics, not only in lesions such as I have mentioned, but in others of bacterial origin which come within the province of the dentist to treat. Experiments seem to have shown that silver forms a lactate with the lactic acid produced in the metabolism of the microorganism, and this compound kills them. An abscess opening into the mouth is a perfect incubator for all kinds of bacteria, and if silver and its preparations do what is claimed for them, they certainly have a large field of usefulness here.

Citrate of silver, in the hands of the general surgeon, seems to be quite as efficient as lactate; one part of the latter is soluble in fifteen of water, the former is soluble one part to 3,800 of water. I have had no experience whatever with citrate in the treatment of dental

lesions. The one disadvantage in the remedy is that the solution must always be prepared fresh, as it deteriorates very rapidly under the influence of light.

Discussion. *Dr. A. H. Palmer, Pasadena:* I am not a believer in the practicability of heat as a sterilizer of pulpless teeth, because of the comparatively low degree that can be borne by the patient. T. Lauder Brunton says a temperature of 66 to 70 degrees C usually *arrests* the movement of bacteria, and if *continued for an hour* destroys adult organisms though not spores. A temperature of 100 degrees C (212 degrees F) usually destroys spores as well, but this is not always the case. Globig finds that spores of a particular species of bacteria belonging to the class of potato bacilli are destroyed by steam at 100 degrees C in  $5\frac{1}{2}$  to 6 hours, by steam at 110 degrees C in  $\frac{3}{4}$  of an hour, at 113 degrees C in twenty-five minutes, at 120 degrees C in ten minutes, at 126 degrees C in three minutes, at 130 degrees C in a moment. These tests are verified by Koch. The patient can take his choice of a temperature of 100 degrees C (212 degrees F) for  $5\frac{1}{2}$  to 6 hours or a temperature of 130 degrees C for a moment. But if dentin is extensively invaded by a "soft plasmic material carried from the pulp," as Dr. Moore has stated, and if "this substance offers a favorable culture medium for bacteria," it stands to reason that a sufficient amount of heat must be used to render the substance sterile—or if we admit his claim that drying sterilizes (which is not a fact), the Doctor must generate a sufficient amount of heat with his root-drier to dry the substance.

What would be the effect in a root-canal of a sufficient amount of heat to sterilize it? First, the length of time a patient can stand a heated wire would be so infinitesimal that a mere charring of the surface it comes in contact with, a sealing up of any pathological bacilli in the adjacent tubuli, and the gate is merely shut and the barn door left open for them to "pass off through the cementum, finally to be absorbed and eliminated by the surrounding tissues." Your "patient's cells certainly would call out for mercy," if *he* did not, and the resulting inflammation would probably be as great, or greater, than if no drying had been attempted. To dry a root-canal does not of necessity sterilize it, neither is it possible to so dry a canal with the tubuli still moist as to accomplish what the essayist claims. It is a well known fact that tubercule and many other

forms of bacilli are not destroyed by drying; and such being the fact, the general proposition that any form of root-drier can sterilize a canal with the amount of heat that can be borne by the patient must be a delusion.

Much better results can be obtained by placing what bacilli or spores are present in a condition of "innocuous desuetude" by using some good antiseptic, such as a solution of formalin, or any suitable antiseptic sealed in the canal and left for a sufficient time to do its work, repeating the operation as many times as may be necessary, than by attempting to sterilize the canal with any form of drier, even admitting that sufficient heat could be used, which I do not believe, leaving devitalized material that would surely be invaded by moisture and thus become a favorable culture medium. It is better dentistry to sterilize the canal with suitable antiseptics, leaving it moist with the solution to prevent the future growth of spores or bacilli.

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**SALIVARY CALCULUS FROM THE SUBMAXILLARY GLAND.**—S. H. Dessau reports a case in which the condition suggested some slight suspicion of Ludwig's angina. Suppuration and spontaneous rupture occurred, followed by recovery. The calculus was passed from Wharton's duct and measured eleven-sixteenths by twelve-sixteenths of an inch.—*Med. News*.

**GELATIN AS A HEMOSTATIC.**—Bauermeister (*Med. Press and Circular*, Jan. 1900) reports a case of almost fatal epistaxis cured by injections of a solution of gelatin. A woman, aged sixty-eight, bled so profusely and continuously in spite of all ordinary measures that half a liter of physiologic solution had to be injected subcutaneously. The following treatment was then carried out: Syringing of the nasal cavity with warm saline solution to get rid of crust and blood-clot; then twenty to thirty grams of warm fluid gelatin was introduced into the nose by means of a glass syringe with a wide nozzle, the *alae nasi* being pressed upon the nozzle in order to prevent the gelatin at once running out again. After removal of the syringe the gelatin hardened quickly and the bleeding was arrested at once. He also reported a series of successful instances of the use of gelatin as a hemostatic. He used the gelatin internally in ten-per-cent solution in three cases of hemorrhage from the gastrointestinal canal, also externally in the form of tampon soaked in gelatin in several cases of epistaxis in which plugging had been unsuccessful, and in one case of profuse bleeding from the uterus, always with prompt and good results. In only one case—hemorrhage from the lungs—did twenty to thirty grams of gelatin daily fail to arrest the bleeding. The writer believes that it undoubtedly facilitates coagulation, and then when applied on the surface it can do no harm. As to its subcutaneous employment he acknowledges that not enough is yet known of its possible danger to encourage one to make a trial.

## Digests.

**CERVICAL GLANDS.** By Dr. Carl Schleich, Berlin. Inflammatory irritation of the ganglia in the submaxillary region and in the cervical fascia involves a fusion of the glandular capsule and periglandular tissue with the large vessels of the neck, and the possibility of death by hemorrhage plays a great part in total extirpation of the cervical glands of children. Pathology shows, however—and clinical experience is corroborative—that pure inflammatory hyperplasia without suppuration may by appropriate diet and certain medication be influenced in the direction of resolution; even when such hyperplasia has persisted for many months. A submaxillary ganglion which has become enlarged through some form of dental irritation can persist for months as a tumor the size of an apple—painless, movable and devoid of superjacent reddening or fever—and may finally undergo absorption through fatty degeneration. As the various forms of regressive metamorphosis which the glands may undergo fall under three heads, viz., fatty degeneration, caseation and suppuration, our therapy must be based upon recognition of which one of these terminations is likely to occur. Strict observation of the general condition of our patient may often enable us to determine this question.—*Pediatrics*.

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**MALARIA.** The Liverpool School of Tropical Diseases has issued "Instructions for the Prevention of Malarial Fever; for the use of Residents in Malarious Places." The causes of malarial fever are explained to be due to the presence of certain minute parasites called hemamebide in the corpuscles of the blood. In order to produce an attack of fever about 250,000,000 parasites must be present in the body, while in severe cases a billion or more may be present. In sufficient numbers they may be easily detected with the aid of a strong microscope in a drop of blood drawn from the patient by pricking with a needle. The sudden rises of temperature which occur in this disease, and which are accompanied by shivering (ague), are due to the parasites scattering their spores in the blood fluid. The parasites grow up together and scatter their spores simultaneously, causing an immediate rise of temperature and shivering. After a variable number of attacks of fever the parasites may largely

decrease in number, leaving the patient free from fever for a time. At any moment, however, the number of parasites may increase again, either spontaneously or through the patient's exposure to the rays of the sun or to chill or fatigue. Between the relapses the parasites continue to live in the patient in comparatively small numbers. After they have become extinct no relapses will occur, unless as the result of a fresh infection. Quinin kills the parasites. All parasites or their eggs pass in some way or other from an infected individual, animal or plant, to a healthy one.—*Lancet*.

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**SLIDING COVER FOR TUBE IN THE TREATMENT OF THE ANTRUM. FLAME-SHAPED DRILL WITH SHORT, KNIFE-LIKE POINT.** By Dr. Eugene Wunsche, Dresden, Germany. In the frequently long and tedious treatment of the antrum we generally lack a simple and convenient cover for the opening made by the operation. For a long time I have been using for this opening a flame-shaped drill, with a short, knife-like point. The little chisel at the extreme point cuts readily through the bone, and the fine blades of the fine flame-like drill head work smoothly, without causing great concussions. Access to the antrum having been obtained, an impression is taken with gutta-percha, after which we make a twenty-two K. gold tube with a diameter of 0.6 mm. The tube is fitted on and an impression taken over it in order to get the necessary length and exact position.

The sliding cover is made in the following manner: A piece of gold plate is taken 0.25 mm. thick and one cm. square, the four sides of which are turned up 1 mm., the four corners soldered together and a hole made corresponding to the tube. On the side where the slide is to be introduced an opening is filed for a suitable plate upon which, after being inserted, a little projection is soldered in the middle of the end inside the traverse. The other end is bent up at a right angle 1 mm. to furnish a good hold to the finger-nail when the slide is to be opened. This device is soldered to the tube, and the latter either vulcanized into a small prosthetic piece or soldered to a small piece with two clamps, according to the exigencies of the case.

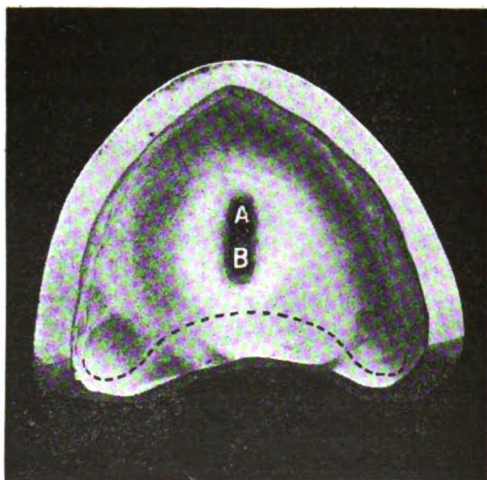
The patient can open the slide easily and introduce a pipe fitting into the tube, and connected with the rubber tube of a syringe, or better still, an irrigator (atomizer) for a slight rinsing. The slide



works easily and conveniently, and the apparatus prevents irritation of the wound. The cover itself is clean and tight. The use of a convenient and well-fitting cover for the antrum, preventing as much as possible an irritation of the wound, contributes greatly to a speedy cure.—*Items, April, 1900.*

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**ADAPTATION OF ARTIFICIAL DENTURES.** By J. Clarence Salvas, D.D.S. In the realm of prosthetic dentistry there are few factors requiring as much skill and scientific thought as the adaptation of artificial dentures. The success herein obtained depends on



the attention given to details. To take an impression and send it to the laboratory without examining the character of the mouth, and without treating the impression and cast as existing conditions may suggest, is to violate an important principle which renders the attainment of successful results very doubtful. Though success is often obtained regardless of any attention given these points, such success may generally be attributed to the presence of the "vacuum chamber," by which certain inaccuracies of workmanship are often obliterated.

The "vacuum chamber" and its various modifications, which have been in use for over half a century, has been and is to this day regarded by many in the profession as an indispensable, or an infal-

lible factor in obtaining satisfactory retention. In this connection its value is certainly overestimated, as the idea of establishing a vacuum of any permanency in the mouth is obviously an absurdity. Its efficacy as such is analogous to conditions produced in the glass-tube experiment, in which, by exhausting the air and applying the tube to the lips, the tissues will be drawn in with sufficient force to support the tube until it drops off, owing to the air yielded by the tissues upon which the vacuum acts. This is exactly what takes place in the case of the denture, and conclusively shows that its utility is but transitory; in other words, that it sustains the plate



until a more or less perfect adaptation is secured, its permanent retention being due to adhesion; and there is no kind of a cavity or space which secures such permanent adhesion and gives so complete a vacuum as perfect contact. A consideration of the parts involved must convince the observer that the tender, sensitive tissues cannot long tolerate even a partial vacuum. Instances are not wanting where a vacuum, even slight in degree, has been attended by decided pathological results.

The natural law governing the phenomenon of adhesion, that two perfectly fitting surfaces with an intermediate fluid will adhere with

force equal to nearly two pounds to the square inch, independent of the atmosphere, is the basis on which artificial dentures should be constructed. To obtain permanent adhesion, absolute contact and uniformity of pressure is a preëminent requisite, and may be secured by preparing the impression and cast in a manner to compress the soft and thick portions of the alveolar ridge and hard palate, and by relieving the pressure on the hard, protruding, bony surfaces characteristic of the palatal ridge. The strength of the adhesion is influenced in a great measure by the conditions of mouth, that is to say, a plate in a small, rigid and dry mouth will hardly sustain five ounces of displacing force; while a plate in the same mouth if moist and comparatively yielding will sustain ten to fifteen ounces.

Previous to constructing a denture the mouth must be thoroughly examined. The importance of this cannot be overestimated. With the finger or blunt instrument note the conditions of the tissues where they are hard and rigid or soft and flexible, also where they are very tender. Ascertain approximately the depth to which the soft tissues will yield, as the amount to be scraped from the impression and cast depends on the relative hardness and softness of the tissues.

The accompanying 'figures' serve to illustrate the method of preparing the cast and impression of a mouth, the tissues of which are uniformly rigid. In this case the palatal ridge is hard and prominent, but has on either side a small area of soft, yielding tissue. Pressure of the plate on the posterior two-thirds of the palatal ridge is relieved by scraping the impression at points shown in Fig. 1, A, B. Fig. 2 represents the cast, with shaded parts corresponding to the soft tissues, where compression is desired. To affect this the cast is scraped at points indicated by AA, BB, CC, CC.

It is important to have the plate line as high as possible, especially over the cuspid prominence, and the cast should be scraped along the plate line where the tissues will permit. Fig. 2, DDD indicates the points where greater compression is secured, while EEE represents the very tender surfaces that will tolerate but the slightest compression. It is a common error to allow the denture to fit too close on this portion of the alveolar ridge, and it is equally inexpedient to reduce the plate to a knifelike edge which invariably lacerates the tissues.

A denture constructed upon this principle will require several days'

wearing to become perfectly adapted. The plate will then be in absolute contact with the mouth, and with more positive pressure on the yielding parts, and through the agency of the fluids between the plate and mouth, adhesion is attained. The impression of a uniformly rigid, flat mouth needs but the slightest modifications to produce a perfect fit. It is therefore clear that the essential feature of this method of adapting artificial dentures is absolute contact and uniformity of pressure, the former secured by a perfect impression, the latter by means above described.—*Brief, May, 1900.*

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WHAT SHALL WE EAT AND DRINK? HOW? AND WHEN? By A. D. McConachie, M.D., Baltimore. Read before the Union Meeting, at Washington, June, 1899. The philosopher Feuerbach spoke truly when he said, "Man is what he eats." This axiom should be made to embrace what he drinks. Theoretically this truth is widely appreciated, but very much neglected in everyday practice; not only by the unprofessional but by physicians. Eating too much, or unsuitable food at unsuitable times and manner, is the chief cause of the host of discomforts called by various names—indigestion, biliousness, dyspepsia, heartburn, etc. Doubtless more suffering is caused by avoidable errors in eating than by the use of alcoholic beverages, enormous as the latter is.

Our food-supply and mode of using it having, then, so much to do with individual health and length of life, let us take a survey of its essentials. A rational system of dietetics should begin with the children of the rising generation in order to fully understand its influence on growth, development and health. In attempting to reform confirmed transgressors our efforts are largely misspent and a fair test of its merits cannot be had. We cannot overestimate the importance of a properly regulated diet. It is essential to maintain perfect health, to prevent disease and to help nature cure disease when once established. This to me is one of the most important subjects connected with the science of medicine, the perfect regulation of diet most conducive to the above conditions. Our greatest possibilities for success, medical and surgical, lie in the successful regulation of the diet. Hence we should be complete masters of its details if we are to cope successfully with the problems of health and disease. Therefore we should have exact physiological knowledge and a clear conception of the chemical composition of all food-

stuffs, their capability of digestion, and the mode in which they are appropriated by the animal economy.

Let us briefly review some important physiological facts and the process of normal physiologic digestion before going into the details of the various foods and drinks. The body is an aggregation of cells, each one a minute mass of protoplasm which has the property called life, life manifesting itself by various functions, as reproduction, nutrition, growth, etc. Each cell therefore has a life history of its own. It grows, fulfills its mission, produces other cells, wastes away and dies. In its life processes waste is created, hence the necessity of food-supply or existence would cease. If the food-supply equals the waste there will be no apparent change. If the supply is less than the waste existence may be prolonged, but must finally cease; if it exceeds the waste there will be an increase in growth. To keep the body in perfect condition the quantity and quality of food should be such as best supplies that which is worn out. Nature furnishes the infant at birth the food-milk which is typically perfect. The infant finds in milk all the various elements necessary for sustaining life, growth and upbuilding of the tissues in the right proportions. Other foods may be successfully substituted if we keep in mind the exact composition of the typical food furnished by nature. A knowledge of physiology will enable us to select that kind of food which is demanded by the age, condition and temperature.

The first step in physiologic digestion is the mastication of food; thus the food is comminuted and admixed with saliva and mucus; the carbohydrates, as bread, mush, potatoes, etc., are thus partially digested, changed into sugar, moistened, and thus rendered more easy to swallow. The next important chemical process goes on in the stomach, where it encounters the gastric juice—hydrochloric acid, pepsin and rennin—and the proteids are transformed, at least partially, into peptones after passing through various preliminary stages; the muscular movement of the stomach facilitating the process by its churning action, and propelling the contents into the duodenum for further digestion. Very little absorption takes place from the stomach. In the duodenum the food comes in contact with the pancreatic and biliary secretions, which complete the digestive processes in the proteids, starches and fats.

These chemic changes completed, the converted food is absorbed

by the circulation and the lacteals; the *débris* or indigestible portion passing into the colon forms the body of the feces. The entire alimentary tract is the haunt of various forms of bacteria, some of which give rise to fermentation and putrefaction. These are carried down with the food.

All food-stuffs are derived from either the vegetable or animal kingdom, the latter coming primarily from the former. Foods are usually divided into organic and inorganic, a very convenient subdivision being to divide the organic into, first, nitrogenous; this includes substances consisting of proteid, as albumen, casein, myosin, gluten, fibrin, legumin, etc.; second, non-nitrogenous, further divided into (1) amyloid and saccharine bodies, usually called carbohydrates, as starches and sugars; (2) oils and fats, substances containing carbon, oxygen and hydrogen, the oxygen being less in amount than in the carbohydrates. Inorganic foods are those which furnish the system with the required salts and water. It then makes little difference whether foods come from the animal or vegetable kingdom, as they all contain three classes of chemical substances, water and the inorganic salts; the heat and energy producers, as starch, sugar and fat and the proteids, tissue-builders.

In dietetic literature we find many misleading statements, due largely, I think, to a faulty knowledge of the chemical composition of foods. The opinion that the vegetable class contains only starch, sugars, water and salts, to the exclusion of proteid elements, largely prevails. This is a mistake, for it is well known that all vegetable foods contain a goodly proportion of the proteid class. Again, some think that the animal class is composed purely of proteid substances. These opinions and statements are misleading. The truth is that all food, whether vegetable or animal, contains all three classes of chemical elements—water and salts, heat producers, and muscle-forming materials—but the proportion varies.

Sugars and starches are always found in excess in vegetables; fat is always in excess in the animal as compared with the vegetable food. Therefore the selection of a dietary does not lie in excluding any one class of food—e. g., becoming carnivorous or herbivorous—but to unite the two in our dietary so that we may secure the proper quantity of the inorganic matter of the sugars, starches, fats and proteids, and yet not have an excess of the one group as compared with the other.

The utility of the three classes of foods in the economy should be borne in mind. The proteids are the true tissue-builders. They enter the alimentary canal as animal or vegetable proteids and are there transformed into peptone, after passing through various stages from alkali-albumen to acid-albumen, to albumoses and peptone, a condition necessary before it can be taken up by the epithelial cells lining the alimentary canal; only a portion of the proteid material, possibly one-third, is so changed in the stomach, the remainder passing into the duodenum, there to be acted upon by the trypsin of the pancreatic secretion and the proteolytic ferments of the bile and intestinal secretions. The peptone being taken up by the epithelium of the intestinal wall, it is altered and passed on to the entero-hepatic circulation; not as peptone, but as serum-albumin, serum-globulin, or fibrinogen. In normal conditions peptone as such is not found in the entero-hepatic circulation. After these proteids are passed on through the liver they are taken up by a process of absorption and changed to form the various tissues and glands of the body. Water and the inorganic salts are purely mechanical in their action as they pass through the system, entering and leaving the system unchanged in composition. Starches, sugars and fats are readily oxidizable and are easily changed within the system. The sugars, those taken in as such, and starches converted into sugars, are oxidized in the liver cells into carbon dioxid and water, with the development of heat as a product. The heat thus generated reflexly stimulates the nervous system. Fats are oxidized, being first emulsified and saponified and absorbed, in the pulmonary circulation, giving rise to heat, which again stimulates the cerebro-spinal nervous system. It is from the proteid class that all the damaging toxins of food arise.

We have thus noted the composition of food-stuffs; let us now look at the digestibility of animal as compared with vegetable food. It has been indisputably proven by experiment that animal foods are more easily digested than vegetable, milk, eggs and beef being the most readily so of all foods in use, with a minimum of residue (three to six per cent) remaining undigested. Hence in health or disease these are the most valuable foods. From twenty to seventy per cent of all vegetable food passes through the alimentary tract undigested. The vegetable foods more readily undergo fermentation and putrefaction. Our preference therefore from a digestive

and non-fermentative standpoint should be in favor of animal foods.

In selecting our foods we should also bear in mind to secure the salts and water—heat producers and tissue formers—in proper proportions. We find this proportion more nearly perfect in the animal food. In milk we find the proportion perfectly arranged for infant life. In youth and adult life, when employment and much activity is required, we need to increase the tissue-forming food—the proteids—hence bread and butter must be added to make it approach the proper proportion of constituents.

The strong objection to animal food is that it is defective in nucleo-albumin, an essential element in the composition of red blood-cells and for the supply of lecithin to the nervous system. Therefore an exclusive animal diet is apt to produce an anemic condition; so some cereal food should be added to the animal diet to supply the nucleo-albumin which gives to vegetable food its chief advantage, beside which its bulk gives the intestine something to contract upon. The great disadvantage of the vegetable foods lies in the quantity of starch and sugar they contain. These undergo fermentation and putrefaction, with formation of innumerable toxins to be absorbed into the circulation. It is then evident that we cannot consider the vegetable or animal foods alone as ideal foods. We must blend the two to secure the proper proportion of the three classes of food required.

We, in contrast with other nations, are called a nation of dyspeptics, due largely to the American tendency to live largely upon vegetable food, including fruit, and rich and highly-seasoned dishes. This error is responsible for the origin of seventy-five per cent of our diseased conditions. The excessive use of fruit, raw, cooked or preserved, for its so-called laxative effect is a serious error in our dietary. True fruit is laxative, but not due to its biliary stimulation and an increased production of glycerol and soap in the intestinal canal, but to its fermentative and putrefactive action; hence acts as an irritant and causes its expulsion through increased intestinal peristalsis, and the patient is deluded because his bowels are moving freely; the putrefaction and fermentation increasing, producing toxins to be absorbed and work their damaging effects upon an already damaged nervous system. Not only the excessive fruit-eating propensity is disastrous, but our irrational method of taking



fruit is in defiance of physiological teaching. The breakfast at hotels and in most private families begins with fruit, usually very acid kinds, as apples, oranges, grape fruit, grapes, etc., followed by some sort of cereal, mush, farina, wheatina, etc., washed down with milk or cream, and with scarcely any admixture of saliva, whose ptyalin should at least partially dextrinize the starch in the mouth. Saliva is the only fluid that digests starch until it reaches the intestines. The digestion of starch in the stomach is retarded or arrested by very small percentages of acids, either the normal stomach acid, hydrochloric, or organic acids derived from fruits; the former, according to Ewald and Boas, arresting starch digestion by twelve per cent presence and retarding by .07 per cent. Chittenden says that .003 per cent stops starch digestion. The organic fruit acids, according to Ewald and Boas, are credited with a decided power of inhibiting the digestion of starch in the stomach, though less than that of hydrochloric. Fruits, then, when eaten should be eaten alone or at the end of a meal, when starch digestion has been partially completed. Condiments and highly-seasoned articles of food can be considered in their effects and uses in the same category as stimulants in general, as tea, coffee and alcoholic beverages, which we will now consider briefly.

It is generally conceded that tea and coffee in immoderate quantities impair digestion, and slowly produce abnormal digestive and absorptive processes. This is largely due to the stimulating principles therein, thein of tea and caffein of coffee, combined with the deleterious action of the contained tannin on the mucous membrane. Excepting for the water and salts ingested in tea and coffee drinking the food value is practically nil.

Regarding the food value and digestive effects of alcoholic beverages there is quite a wide divergence of opinion. Formerly it was the prevailing opinion among physicians that alcohol in moderate amounts was a food and aided digestion, but the careful, painstaking and accurate investigations of recent years have demonstrated the fallacy of that opinion; and at the present time the majority of physicians who have made a careful study of the subject are convinced that alcoholic beverages not only do no good, but are positively injurious to digestion, absorption, assimilation, and oxygen-carrying power of red blood-cells. Dr. Chittenden says: "One tablespoonful of whisky, fifty per cent alcohol, reduces digestive

activity seventy-five per cent." Dr. Richardson of London says: "Nothing more effectually hinders digestion than alcohol." Dr. Kellogg says: "Nothing could be farther from the truth than the popular notion that alcohol, at least in the form of certain wines, is helpful to digestion." These and many more opinions of similar import could be quoted to prove that alcohol not only has no food value, but seriously retards digestion, especially the proteids, and thereby seriously impairs the nutrition of every tissue and cell of the body. The muscular power is reduced, mentality is interfered with, the special senses are reduced in acuity and activity; hearing reduced, acuity of vision lessened, the sense of taste obtunded, the sense of smell blunted, the pain, heat and touch senses materially impaired.

What, then, shall we eat and drink? From birth on the diet should be carefully regulated, always keeping the animal class of food in excess of the vegetable, adding sufficient of the latter as soon as it can be tolerated by the digestive apparatus. It is an every-day experience to see infants who have thriven upon the breast milk or modified animal milk during their first year suffer much from digestive disturbances when that period has passed, largely due to adding to the dietary, under the false impression that the breast milk or artificially prepared milks are no longer nourishing enough, pure milk, crackers, porridge, potatoes and bread. This will if persisted in produce chronic intestinal indigestion. During the second year the child does not need the large proportion of carbohydrates it receives in earlier life, that is, six of carbohydrates to one of proteids, as it is not able to digest and assimilate them if given in large amounts, as farinaceous foods. The child in its second year requires more nitrogen in proportion to other food elements than in its first year. Potatoes should not be given till the end of the second year, and then baked only. Potatoes and oatmeal are the most potent factors of indigestion at this age. All farinaceous foods should be secondary in the diet of a child until it has shown a capacity to digest them, usually at the end of the second year. During the developmental period great care should be exercised, as the child will preferably indulge more and more in the vegetable food to the exclusion of the animal class which goes for proper tissue-building, thus laying the foundation of various diseased processes, as tuberculosis, etc.

When adult life is reached we should not relax our vigilance and allow intemperance in dietary to reign, as too liberal indulgence in vegetables, fruits and alcoholic beverages, thereby giving rise to retrograde products of metabolism and toxins, the result of putrefaction and fermentation in the intestines, and thus engraft disease upon the system. Therefore the diet should be composed principally of milk, eggs, meats of all kinds, including fish, poultry and game, excluding veal and much pork of any kind. With this include liberal amounts of well-cooked bread, plenty of good butter, and a limited amount of vegetables, chiefly rice, peas, string beans, spinach, lettuce and macaroni, excluding much potatoes—never sweet—and eat sparingly of other forms of vegetables. Avoid all fried forms of food, bonbons, confections, pastries, cakes and rich desserts. Fruits should be used as already outlined. As to drinks, the first requisite is pure water. Man can live many days on pure water alone, as seventy per cent of the body is made up of water. The water should be taken preferably at about the temperature of the body, and not according to the peculiarly American habit, as ice-water and in large quantities. The taking of ice-water retards digestion, both by lowering the temperature of the stomach contents and by a dilution of the gastric juice. It is also capable of damaging seriously the delicate mucous membrane and finally causing catarrhal inflammation of the stomach and intestines in people otherwise predisposed to that affection. Water is better before, after or between meals, and not swallowed with each mouthful of food. A quart of fluid is sufficient for the needs of the day. Milk, being largely water, can be considered an efficient substitute for water, having at the same time nutritive value. If it be not well borne as milk some modification thereof, as buttermilk, skim milk, junket, koumiss, kefir, may be tolerated. It is preferably taken alone with no other food, and warm, say one hour before meals. For reasons already given, if we are to maintain the highest perfection of nutrition and digestion we should avoid all alcoholic beverages, tea, coffee and soda fountain drinks. The individual by following religiously, rigidly and rigorously this outline of dietary will easily cope with the harrassing struggles of life, maintain health, and ward off disease. By neglect of these rules the individual will sooner or later cry out, "My stomach must be out of order." "Everything I eat sours on my stomach." "I am sick at

my stomach all the time." "I am all used up." "I must be bilious." "My liver must be out of order." "I must have malaria." On further questioning other symptoms are given, as eructation of gas, with or without a bitter, sour taste, accompanied by epigastric pain, relieved by belching; palpitation and pain over the heart region, headache or a feeling of uneasiness about the head, a feeling of languor; the tongue is coated, nausea may be frequent, bowels may be loose, and diarrhea complained of. Sleep does not refresh and the patient feels worse after sleeping. The individual becomes irritable and trivial affairs cause much worry. Inability to concentrate the mind and a desire to be left alone is common. The appetite may be impaired or aggravated.

In looking for the cause in any case we usually find the trouble to be due to one or more of the following causes: Rapid eating, improper food, eating when fatigued, use of alcoholic beverages, tea, coffee or soda-water drinks, too severe exercise after eating. The treatment of such condition is largely dietetic. Medicine is of secondary importance, and an aid for only a short time, overcoming the faulty digestion then existing. We must correct the underlying cause. Defective teeth should be repaired; indulgence in tea, coffee and alcoholics forbidden; too rapid eating corrected; eating too frequently at irregular times abandoned; eating when fatigued or exercising too soon after a meal forbidden. By exercise I do not mean the walk to and from business, but long walks, riding the wheel, or severe mental exertion.

Avoid foods as follows: Those containing much cellulose, as the coarser vegetables, skins of fruits, etc.; also those containing an excess of fat or prepared by the aid of fat, as fried foods, gravies, made dishes, sauces and generally speaking, those foods designed to please the palate without having any decided nutritive value. Sweets are to be avoided; oatmeal and other farinaceous food as commonly eaten, with sugar and cream, are especially pernicious and liable to undergo fermentation. Avoid eating at any time simply for the palatability of it; that is, at times when the stomach and intestines have not gotten rid of the previous indulgence. Briefly, impairment of nutrition and digestion is avoided by correction of bad habits of eating, use of proper foods, eating at proper times, with regulation of time and quality of drinks. Medicinal treatment is useless without proper dietetic management.—*Cosmos*.

**TRUE STATUS OF THE PULPLESS TOOTH.** By D. D. Smith, D.D.S., Philadelphia. Read before the National Dental Association at Niagara Falls, August 4, 1899. The pulpless tooth as an organ is unique and sustains unique relations among its confederates. It may be defined as a living organ with the greater part of its substance dead matter. Imperfectly understood, it has been perhaps more frequently the subject of experimental conjuration than of rational and scientific treatment. It seems to live in an atmosphere of suspicion and prejudice, for reasons not well defined nor consistently explained. In the minds of the laity it is universally associated with a "blackened" crown and rapid decay. In the profession it is almost as commonly esteemed an erratic organ, with sporadic disturbing tendencies impossible to control. By some it is thought to be of necessity an indicator of weather changes and an inevitable sleep-disturber. Without accepting any of these as necessary conditions we know that, as frequently treated, it is the cause of many aggravated and serious disturbances, as pericementitis, facial neuralgias, dental abscesses, and various pathological conditions of mouth, ear and brain.

The largest and most practical conception of a tooth is not that which comes from studying it in its anatomical make-up of pulp, dentin, enamel and cementum, with all the microscopical minutiae relating thereto as found in the text-books; it comes rather with the view presented when studying the sources of its derivation, development, sustentation, utility and kindred phenomena. For practical comprehension of the pulpless tooth no better division can be made of it than the natural one of crown and root, for in this we have distinctly marked the two sources of sensation and nutrition distributed to it. Consideration of a tooth, whether physiologically or pathologically, should never lose sight of the fact that its utility is wholly dependent upon its secure attachment in the alveolus, and that this attachment is not alone mechanical, but that it is a vital living union practically if not wholly *independent of the pulp*. This attachment or living union, so very important for both comfort and utility in the tooth, is passed over and dismissed in the text-books with the remark that it is an articulation belonging to the order gomphosis.

The permanent saving of a pulpless tooth rests upon the fact that there is a source of nutrition to the cementum maintained inde-

pendently of pulp action, and that this nutrition of the root is practically unaffected by the destruction of the pulp. With the death of the pulp there is death of the whole of the *crown* of the tooth; the enamel and dentin are left absolutely without sensation or nutritive function. Whatever change comes to the crown of the pulpless tooth is of a distinctively disintegrating, retrograde character, tending directly to undermine its integrity. The disintegration will be rapid or gradual in proportion to the character of the individual tooth. The crown of a first permanent molar which erupts at six years of age, if devitalized at eight to twelve, will lose its cohesive strength, become fragile and seem to melt away under the adverse conditions to which it is ordinarily subjected in the mouth in very limited time, while a thoroughly calcified tooth devitalized as to its crown at or near maturity will generally complete its normal period of usefulness without visible evidence of the important loss the tooth has sustained. These phenomena are so well recognized that a statement of them might seem trite but for the bearing they have upon other and less familiar facts and observations.

While with the death of the pulp there is complete cessation of vital function in the crown, the vitality of the *root*, except in its dentin, is not interrupted or lessened. The cementum, with its membrane, is the most important tissue for the conservation of the tooth, hence the peculiar emphasis attaching to the fact that the cementum receives its nutrition and life from a source independent of and practically unaffected by devitalization of the pulp. Articulation with the alveolus also, that most important of the tooth's relations, remains unaltered, and there are substantial reasons for assuming that the functions of absorption and nutrition are not interfered with. Pulp endowment, in so far as it affects healthful union between root and alveolus, might be dispensed with without detriment after the tooth is fully erupted.

It is in place at this point to allude to that practice (possibly "fad" would better express its meaning) which holds so lightly the virgin alveolo-dental articulation that it breaks it up at pleasure; in other words, it extracts, mutilates and replants apparently without consideration or reason, and with no regard to the fact that this all-important relation once disturbed is never certainly restored. Such practice may attract attention and possibly gain fleeting notoriety,

but it is wholly at variance with the laws governing nutrition as exhibited in other parts of the osseous system. Extraction, we believe, destroys the life of the cementum and the pericementum. Excision of the root, and more especially denuding it of cementum, deprives the root of the only tissue through which restoration to a vital, nutritive union with the alveolus is possible.

A replanted tooth may for a time present the appearance of having resumed its normal relations, but it is a matter wholly undemonstrated that the pericemental membrane, when once its connection with the alveolus has been broken by extraction, ever resumes its true function—that of nutrition of the cementum. Replantation under the most favorable conditions, as quick replacement of single-rooted occluding teeth with no disturbance to root or membrane, is but an experiment in any case, and is frequently if not usually followed by beginning absorption of the root within a brief period. The period of usefulness for such a tooth is bounded by months rather than years, so that if the end sought is permanent restoration to usefulness the object is not often attained. “Extraction,” “excision,” “treatment out of the mouth,” “replacement,” may sound to the ear as of a dento-surgical operation of magnitude and importance, but the procedure is believed to be unjustifiable from any surgical standpoint or from any good results yet born of it, it being physiologically incompatible with the office of the tissues involved.

- And if this be said of *replanting* under favoring conditions, what shall be said of the modern operation of *transplanting*, that process which selects months-old, dried specimens to plant in artificially prepared cavities in the jaw? Can any preparation of such a root as shaping, polishing, filling or disinfecting, restore to its dead cementum or pericementum the life which shall reunite it in a living union with osseous tissue in which it may be implanted? As well might we look expecting to see the fulfillment of Ezekiel's vision in the valley of dry bones, or that wonderful prophecy of a young professor in one of our dental colleges, whose raptured vision beheld teeth shaped from animal ivory, and even porcelain, planted in openings made vacant through extraction, as that the dried cementum on the root of an extracted tooth shall ever be revived and renourished through the instrumentality of pericemental action. One of two results must follow the operation of replanting or transplanting a tooth: either there will be renewal of the nutritive function in

cementum and pericementum, or there will be elimination of the tissues of the root through absorption or suppurative displacement. Living tissue abhors dead matter, and cannot be induced into permanent association, much less vital union with it. The reunion between the implanted portion of the tooth and the jaw which for a time seems to take place is more apparent than real; the discolored gum-tissue and the retarded circulation reveal that the union is more mechanical than vital.

But to return to a more careful study of the root portion of an undisturbed pulpless tooth. *It* is a vital, living organ, retaining and exercising function as when the pulp distributed sensation and nutrition to the dentin and enamel. Engorgement of pulp-tissue resulting from a recent devitalizing application may and frequently does produce hyperemia of the pericementum, but the resulting irritation quickly subsides on removal of the devitalized pulp. There are no necessary untoward cemental or pericemental symptoms—neither change in the office work of these tissues following the removal of the pulp—hence this operation, accompanied with proper disinfection of the tubules and of the intertubular matter, necessarily implies uninterrupted normal function of the tissues which furnish vital attachment between root and alveolus.

Pulpless teeth when properly treated are wholly comfortable; not weather indicators, not erratically subject to periodontitis, alveolar abscess and other pathological conditions, but teeth with a favorable prognosis in all essential particulars.

Pulpless young teeth, that is, teeth which have lost their pulps before the vascularity of the cementum has been restricted by the contraction of its lacunæ and canaliculi through deposits in its substance, are far more subject to cemental accretions, or so-called exostosis, than the same teeth with living pulps. This is by no means an unfavorable condition, as through it the territory of normal circulation is increased to the benefit of the tooth.

A noticeably frequent result of pulp-destruction is a closer, firmer union of root and alveolus. This is probably due to two causes: first, an increased tendency to a deposit of cemental tissue on the surface of the root; second, the entire obliteration of calcific deposit through pulp influence. A pulpless tooth which has never been the subject of pyorrhea alveolaris, the author from careful observation believes to be practically if not entirely exempt from that



trouble; and removal of the pulp in the beginning of the disease in individual instances is attended with most satisfactory results.

The value of a pulpless tooth should not be estimated from the condition of the natural crown, as *it*, with present methods for permanent crown restoration, is the least important part of the tooth. The *root*—the living part—and its surroundings, that upon which the permanent comfort and retention of the tooth depend, should always form the basis of judgment and a diagnosis. If the root portion of the tooth is firmly in vital union with the alveolus and without pyorrhetic tendencies, the condition of the crown, whether much decayed or broken, or whether wholly gone, is not a matter affecting the possibilities of restoration in the smallest degree. A crown having the appearance of the natural tooth, and practically indestructible, can be supplied on any good root, and on many very badly broken ones, in any part of the mouth. That root which has an uninjured pericemental connection never questions as to whether the crown it is supporting is natural or artificial, but performs all the functions of a tooth with uncomplaining fidelity.

It is generally easier and more satisfactory, because of facility of access, to deal with a root or roots devoid of crown than with a tooth having a crown susceptible of contour restoration by means of a so-called filling. We conclude then, that the pulpless tooth, with or without a crown, is a living organ of the economy and to be treated as such. It may be removed or extracted when obviously demanded for cause, but *never for treatment*. Special care is demanded in its treatment not to pierce or otherwise injure the cementum or its membrane; to thoroughly remove all pulp decomposition, and disinfect the tubular and intertubular matter. To accomplish this there may and should be rather free removal of the dentin from the thicker portions of the root, care being exercised not to trench upon the cementum and to leave the apical third practically undisturbed. The one root-dressing and disinfectant than which nothing else is demanded, as nothing acts so well, is pure wood creasote. If it is proper to speak of specifics among remedies, creasote is a specific as a root-dressing, acting to promote harmonious relations between the devitalized dentin and the living cementum. It may be tightly impacted on raw cotton and sealed in a root from which an aseptic pulp has been removed, but never so applied in a septic root.

Removal of so much of the dentin as may be determined upon, enough at least to gain free access to the root-canal and thorough cleansing of the root from all septic matter, should be followed first by instrumental applications of the creasote in the canal, and this in a few hours by a few fibers of saturated cotton placed loosely in the canal; and this again by cotton more closely packed, until the creasote and cotton can be tightly sealed in the root. When the cotton withdrawn from the sealed root has the odor of the creasote only it may be permanently sealed with filling material, or with a post in cement, with perfect assurance of future comfort. Successful treatment of a tooth having a septic pulp, accompanied with tendency to pericemental trouble, requires judgment, tact and experience, which no details in a written article can impart. This one point may be emphasized to great advantage, viz., no root should be sealed with a permanent filling without first testing it with a cotton and creasote dressing and not until the creasote permanently overcomes all other odors is the root ready for filling.

It has yet to be fully comprehended that "*methods*" of filling, as well as filling-materials themselves, are wholly subordinate to preparatory treatment of the root; and that that treatment is best which best promotes healthful nutrition of the cementum, remembering that whatever assistance may have been imparted through pulp influence from the living dentin is now withdrawn. Hence the effort should be to hold the devitalized dentin forming the body of the root in harmonious relation to the life of the cementum. And this object is much more certainly accomplished with creasote than with any other remedy.

It is not the purpose of this paper to discuss root-filling materials nor their methods of use; neither crowns nor methods of crowning; but it is wholly in place after an experience of some fifteen years in the use of amalgam for setting the Bonwill crown to raise a voice of warning against the use of amalgam in roots, either as a filling-material or for the setting of posts. This latter operation can be done with greater facility and with equal security in the use of the non-irritating oxyphosphates, themselves reliable root-fillings and of adequate strength for securing posts. The oxychlorids are perfect root-stoppings and to be preferred above all others in pulpless teeth retaining the natural crown.

Reference has been made to the fact that a crown having the

appearance of the *natural organ* can be securely applied to *any* root having the alveolo-dental articulation in a normal physiological condition. Emphasis should be given this statement, and an energetic and most emphatic protest raised against the increasing use, both in crown and bridge-work, of the disfiguring gold crown. Perhaps nothing cheapens dentistry more or more justly subjects it to jest and ridicule than the present unseemly and wholly unnecessary display of gold in and on the teeth. Gold crowns are admissible only on the roots of molars, where they are not exposed in ordinary movements of the mouth. Incisors, cuspids, bicuspid upper and lower, and upper and first molars can be readily crowned with a band and post, so constructed that the porcelain tooth only shall be exposed, while all strain of mastication and occlusion is thrown upon the gold, which is entirely concealed. For first and second individual lower molar roots there is nothing comparable to an all-porcelain crown, of a construction which permits of fitting and setting the posts independent of the porcelain, on the principle of Bonwill crown. Such crowns carefully adjusted and set in oxyphosphate, or better, a mixture of oxyphosphate and a good amalgam, form a tooth which for durability and appearance leaves nothing to be desired.

[This forms a practically new cement. My attention was first called to its valuable properties by Dr. L. C. Taylor; afterward I had the pleasure of seeing it elaborately demonstrated by Dr. Clinton W. Strang. It is produced by first preparing a mix of amalgam as for filling, and following this immediately by mixing a good cement as for same. While the amalgam and cement are still in working condition, they are incorporated by mixing together in about equal parts. The resultant compound takes much more the nature of the cement than the amalgam. The color is sparingly improved, but the adhesive properties are greatly improved in the new cement. It attaches itself very tenaciously to dry dentin, and stands the wear of mastication much better than any plain cement. This mixture of cement and amalgam is valuable in many cases in practice, and should be more generally known.]

We are thus led to the inevitable conclusion that the pulpless tooth is a living organ, maintaining when properly treated the same vital relations with the alveolus as when it carried a living pulp; that it is susceptible of perfect esthetic restoration, and that for retention and utility its prognosis is most favorable.—*Cosmos*.

**MULTIPLE NECROSIS OF THE MANDIBLE.** By W. H. Breward Neale, L.D.S. Read before Odontological Society of Great Britain. The patient, a medical man, consulted a dental practitioner on account of great pain from a mandibular right cuspid in which the pulp was exposed. At the first visit the pulp was dressed with a devitalizing agent; at the second a portion was extirpated; at the third the root and crown were filled, but a flexible drill was broken in the canal. The position of affairs was made clear to the patient and he went away. On the fourth day he experienced great pain and asked that the tooth be removed, but as it was thought possible to save it an opening was made through the alveolus with a view of relieving the pain. The patient attended the next day again, hoping to have the troublesome tooth removed, but the practitioner still thought removal of the root unnecessary and excised the crown. On the sixth day, however, the root was extracted, but no relief following the case passed into the hands of one of his surgical colleagues.

The patient was admitted into the Queen's Hospital on Feb. 9, 1899, with intense pain and swelling in and around the right side of the mandible. The condition of things became worse; intense boring pain was experienced in the jaw, and there was considerable swelling on both aspects of the alveolar border and below the body of the jaw. An incision was made through the inflamed gum under gas, but no relief followed.

On the 10th he was ordered hot poppy-head fomentations, a mouth wash of the same, a calomel purge and quinin—morphia to be given hypodermically when necessary. On the 11th the pain was more intense and extended to the symphysis, the gum was much swollen, and the right submaxillary and submental regions were swollen and brawny. No fluctuation could anywhere be detected. Temperature 101 degrees F. As the point of most pain was located round the right first bicuspid, gas was given, the tooth extracted, and a free incision made down to the body of the bone through the junction of the gingival and buccal mucous membrane. No pus was evacuated, but the bone was bare for a considerable area. A light packing of iodoform gauze was inserted and warm antiseptic mouth washes were used frequently.

On the 12th the pain was still as severe, and the inflammation was extending to the left side. Gas was again given and an incision

made down to the bone below the central incisors. On the 13th the temperature went up to 103 deg.—the left side of maxilla was involved as far as the angle, and the submental and submaxillary regions were more swollen, the outline of the neck being quite obliterated. The floor of the mouth was much swollen and inflamed, causing considerable difficulty in swallowing, and some embarrassment of breathing. The constant dribbling from the mouth of the increased salivary secretion was very troublesome and the general condition was grave.

The patient was seen in consultation. No fluctuation could be detected, but it was thought advisable to make two further incisions under gas, one below the left bicuspid to the body of the bone, and one externally to the middle line to the inner aspect of the symphysis. No pus was found, but the bone was bare in each region. Some sero-sanguineous fluid oozed out.

During the next forty-eight hours the temperature fell to 100.5 deg., but the local condition continued unsatisfactory. Indistinct fluctuation was now felt in both submaxillary regions, so gas was given and the external incision enlarged. Sinus forceps were passed laterally along the denuded bone and a slight quantity of pus was evacuated. The pain was now less and there was no further extension of the inflammation. On the 16th the temperature rose to 102.4 deg. and the general condition was not quite so satisfactory. Pus then began to escape from the incisions in the mouth and improvement followed. The temperature after the 19th ranged from 99 deg. to 100 deg. On the 24th distinct fluctuation was noticed in left submaxillary region. An incision was made and nearly an ounce of pus evacuated. Steady improvement took place, the swelling everywhere considerably decreased and the temperature fell to normal. During this time the teeth in the lower jaw gradually became loose, especially the incisors and bicuspid. They both moved individually and *en masse*, showing that the alveolar border was much damaged. It was at this time hoped that the necrosis would be limited to the alveolar border and the bicuspid regions of the body of the jaw, as the swelling was almost limited to these regions.

On the 27th he was able to return home, and rapidly became convalescent, the local condition being marked by alternating periods of quiescence and activity. Minced and soft food only could be taken, both because of the condition of the teeth and the difficulty of

opening the jaw. About the middle of March the dead bone began to loosen, and one or two sequestra were removed from the openings in the jaw on the right side. The difficulty of mastication persisted and mobility of the jaw was much impaired. After consultation it was decided to extract the right lower first molar, as the recurrent swellings were chiefly located round this area. Some local improvement followed, and at short intervals sequestra presented at the openings in the gums, and were removed under cocain. On April 2 the right lower third molar was extracted, as it had become painful and partially dislocated and the swelling had extended to the ramus of the jaw. Local improvement again followed and further sequestra were removed, but it became apparent that external incisions would be required, so on April 22 chloroform was given. Submental incisions were made laterally from the sinus leading to the symphysis, and all loose sequestra (ten) removed from the interior of the jaw. The finger could be easily passed on each side through the bone into mouth. It was found impossible to preserve any teeth except the left lower cuspid and first bicuspid, and the left third and second molar. Good recovery was made, but for some days much annoyance was caused by the free flow of saliva through the bony cavities and external wound. For two months things were fairly quiescent, one or two small sequestra being removed at intervals.

On June 27 the gum on the right side was incised under gas, and a large sequestrum removed, and at the same time the left second molar was extracted. On July 5 a large sequestrum was removed from the right side after incision of the gum under gas prolonged by using the nose piece. Further sequestra were removed at longer intervals, one notably large from the left side in September. The left third molar was extracted Nov. 9, as it was causing pain and swelling, and there was now no further need to keep pressure from the left cuspid and bicuspid which had become fixed, although there was still a small area of dead bone close to the root of the former. This separated and was removed on January 5, 1900, and on the same date a small sequestrum pointed and came away through a small external localized sinus over angle of maxilla on right side. At this date the maxilla seemed quite sound with the exception of these two unhealed sinuses, and some slight tenderness and swelling over the region of left third molar. The denture could, however, be worn with comfort. Mastication was well per-

formed and there was free mobility of the jaw. The area supplied by the mental branches of the inferior dental nerve was partly hyperesthetic and partly anesthetic.

The case is interesting surgically: (1) from its causation; (2) from its gravity during the first few weeks. The risk from sepsis was considerable, and at one time the fixation of the floor of the mouth gave rise to considerable anxiety. Had the inflammation extended to the glottis asphyxia would have ensued, for owing to the swelling of the neck a tracheotomy would have been almost impossible; (3) from the failure of incisions or extraction of teeth to give relief to the pain, which was most intense, owing to the central character of the inflammation; (4) from the long period during which sequestra separated, twelve months; (5) from the number of the sequestra, forty-nine were in all removed. The average size of the larger ones was 1 inch long,  $\frac{1}{4}$  inch wide,  $\frac{1}{16}$  inch thick, and they were dense, fenestrated and ragged in character; (6) from the extremely satisfactory result—a perfectly useful jaw without any visible deformity, well able to support the pressure of a denture—a result largely contributed to by the pluck of the patient, and his readiness to submit to all operative measures deemed advisable.

Mr. Breward Neale said he first saw the case on March 4 with Mr. Marsh, who explained to him the uncertainty of the results of the disease, and told him that the particular molar required to be extracted was giving great trouble, but that the mandible was in such an uncertain condition that it was possible if any great force were used in removing the tooth the mandible might be fractured. The conditions were very much complicated by the fact that the mouth could not be opened further than just to enable a very small mirror to be used, and when ultimately it was decided to extract the tooth he removed it with a pair of very small upper molar forceps. The patient was seen from time to time, but the mouth remained in the same difficulty as to opening and the difficulty of making examination; but by May 5 he was sufficiently well to come into town, and Mr. Neale managed to get some impressions, as he was afraid if the whole of the lower teeth were lost—which then appeared probable—it would be very difficult to estimate what was the normal relative position of the mandible to the maxilla. He therefore managed to get some sort of a model in section and took the bite. On June 1 a distinct improvement was shown. The right

second molar was troublesome, but it was not removed as the patient had the lower left bicuspid and cuspid standing, and there was no doubt some necrosed bone around them. It was by keeping the third and second molars on that side as long as possible that enabled the premolar and cuspid to settle down; the molars acted as cushions to prevent the weight of the closure of the jaw falling on the cuspid and bicuspid. It was very difficult to decide whether these teeth ought to be extracted, but they had been kept and were now quite rigid and useful. In September a denture was made, which gave no trouble at all, and retained its position in the mouth in a way he had seldom seen a lower denture do without bands. He attributed that to the patience and adaptability of the patient. In October and November some teeth were filled, among them the upper right cuspid, in which the pulp was decomposed and in a foul state.—*Brit. Jour. D. S., April, 1900.*

\* \* \*

**EXPERIMENTS IN VULCANISING DENTAL RUBBERS.**  
By David Headridge L.D.S., Eng. Read before the Manchester Odontological Society. To begin with, one so often reads of the desirability of vulcanising dental rubbers at certain temperatures to obtain the "best" results; that certain qualities are superior to others; that it is particularly advantageous to vulcanise between metals so as to increase their strength, and the like; without the record of any scientific data upon which such assertions are based, that I thought by a series of experiments these statements could be verified or refuted, and so serve as a guidance in practice. However, such experiments have still to be carried out, for despite the assertions of certain firms, I yet want a standard rubber, one whose working range is a calculable quantity, and that limited. In the first place we began with a series of experiments to establish the best temperature at which to vulcanise a given rubber, both as to the time occupied in getting up to a given heat, and the time taken in maintaining that heat. The rubbers were tested by clamping in a vice and suspending a weight. We soon found that great variability existed, not only as regards different temperatures, etc., but as regards the same rubber at the same temperature, although fairly satisfactory results seemed to be yielded by the temperature and times we had long adopted, and which served with certain variations as the basis of our future experiments. However, the variation exist-



ing with the rubber under test for equal conditions made me anxious to secure a better rubber if possible. With that object I secured the examples tested on Table I., as the one I had been working with was A. I thought it did not come out of the ordeal so badly, and began to think that the failure was due more to the method of testing than the rubber, for everything in these experiments depends upon an accuracy of execution in which every detail is carefully considered, noted and carried out, so that anybody who chooses may refute or confirm the experiments recorded. I hope in this we at least succeeded, so far as was within our power; and I may say in passing, that the sizes recorded when below an inch were carefully measured by a micrometer. So with an idea of testing sample A more carefully we made another apparatus, so as to test the crushing strain that could be applied, noting the deflection produced, and the elasticity of the vulcanite to regain its original shape, the weight being a long column of water which we could easily increase or decrease (*v.* Table II.). However, we found this deflection bore no relation as I had anticipated to the weight supported by a strip of vulcanite. Some snapped soon without much deflection, others bore a considerable weight before breaking, many specimens bending double and not breaking, so this apparatus was discarded, as we thought this record unsatisfactory; although by it I found the same variability existing as to the quality of the vulcanite to resist a breaking strain, which test seemed to me the most satisfactory one to submit rubbers to, as when not weighed by other considerations it is the one most important from a practical standpoint.

Further consideration induced me to design the next apparatus. In this pieces of rubber vulcanized, in strips cut from the ordinary sheets supplied, invested in plaster in a tin box, and afterwards filed up until they measured 4 in. long,  $\frac{1}{2}$  in. wide,  $\frac{1}{16}$  in. thick. These were placed between two wood uprights,  $\frac{1}{4}$  in. thick,  $2\frac{1}{2}$  in. apart, and on the outer side the rubber was pierced for brass pins  $\frac{1}{8}$  in. thick; from the middle, by means of a bar resting on the upper surface of the vulcanite, a scale pan was suspended in which weights could be added, noting the deflection till it broke, the weights being then added up (Table III., test 3). Here, again, the deflection did not bear relation to the weight supported, some breaking with slight deflection, others showing a considerable elasticity, the rubber usually but not always breaking in the center, usually also breaking

in two pieces, but sometimes into several. As a further supplemental test, each remnant was tested by the tension method (Table III., test 4). I then experimented with *D*, as it was an English rubber of a very well-known maker, but here again the results were variable to an extraordinary degree. I then took *B*, but here failure awaited me, for likewise I had not a rubber on whose quality I could rely; for this I seem doomed yet to wait, but if any of my hearers, or the firms to whom we seem beholden for our dental goods, can supply me with a rubber with a less variation than nearly 50 per cent I shall hope to carry out the original idea of my experiments, or let me be corrected in the method of procedure or in the results obtained. Other rubber goods have to pass ordeals to which even 5 per cent of a variation is a condemnation, and though the proportion of sulphur is increased from that required in ordinary rubber goods, in fact in this so-called "ebonite" quite a different compound is produced, yet one has some little suspicion, not unjustified by the remarks in certain scientific books dealing with the manufacture of rubber goods, that it is in some such stage as the "mixing" that the cause of our trouble lies. However, taking into account this present unreliability, it is essential that all dentures made mostly of vulcanite should be efficiently strengthened, not only as regards the general body of the denture, but also no reliance should be placed upon it for attaching odd teeth, if they are expected to perform the duties normally assigned to them. When we consider that in mastication forces varying from 30 to 200 lbs. are exercised by the muscles, it seems as though vulcanite should be used merely as a covering for a skeleton denture, and that much of the labor some of us younger men considered wasted by older practitioners was not altogether unjustified when they laboriously soldered all isolated teeth on to strengtheners, rightly so-called, even in many cases where several teeth had to be attached. Of course some teeth not brought powerfully into mastication may last for years with this fragile vulcanite support or the lucky attachment by a severe-strain-bearing section of rubber.

Another point I would like briefly to comment upon is the relation of various metals to rubber. Some of my results were arrived at purely empirically, but if one thinks of the body incorporated with the caoutchouc, sulphur, and its readiness to enter into incorporation with various metals, one might be saved disappointment.

Only a few metals have I noted, not having conducted any experiments with that object in view, simply recording results obtained during many years. Platina, gold and tin go well with rubber, as they are not readily acted upon by the sulphur. Silver is blackened and the sulphid formed must necessarily weaken any attachment. Dental alloy does not seem to be so much acted upon. Lead turns the vulcanite black through formation of sulphids (noticed in type metal molds for vels). Copper renders the vulcanite quite soft in its proximity, brass only slightly, again due to the incorporation with the sulphur. Iron is affected by and affects the vulcanite, wires in it being loose after vulcanization; therefore it is advisable to so twist your regulating piano wire as to secure a good hold in the rubber, or tin the part of the iron intended to be in contact with it. Aluminium seems to cause some chemical change; at least a strengthener I once used, said to be of that material, caused a bulging up of the vulcanite after it had been worn a short time. Nickel has something of the same effect, the vulcanite having a tendency to warp away from its contact if exposed on wear. Zinc causes a blistering of the rubber somewhat similar to nickel.

#### SIZE OF VULCANIZED RUBBER USED.

TABLE I—TEST NO. I.

Length,  $\frac{1}{2}$  in. between suspension of weight and jaws of vice.

Width,  $\frac{1}{2}$  in. Thickness,  $\frac{1}{32}$  in.

Rubber used.	Getting up, mins.	Time, hrs. mins.	Vulcanising, hrs. mins.	Temperature, Fahr.	Breaking Weight, lb. oz.
Base A.....	25		1 20	331°	28 1
" B.....	"		"	"	27 6
" C.....	"		"	"	19 4
" D.....	"		"	"	24 1
" E.....	"		"	"	21 1
" F.....	"		"	"	16 4
" G.....	"		"	"	20 6
Pink A.....	"		"	"	10 1
" B.....	"		"	"	7 1
" C.....	"		"	"	4 1
White.....	"		"	"	8 10
Black.....	"		"	"	10 7

The samples were selected from what are reputed to be the "best" rubbers on the market, with the exception of black, the quality of which is uncertain.

NOTE.—The temperature given is the reading of a *pressure gauge*,

95 lb. or 331° Fahr. The thermometers used at the same time gave, one 320° Fahr., another 316°. The same reading of the thermometers with another pressure gauge indicated 342°, so that the temperature did not exceed 320° thermometer reading. But all the rubbers were tested with the first pressure gauge, and the thermometers with the reading indicated.

TABLE II.—TEST NO. 2.

Length, 1 in. Width,  $\frac{1}{2}$  in. Thickness,  $\frac{1}{64}$  in.

Rubber used.	Getting up, mins.	Time.		Temperature, Fahr.	Breaking weight.	
		Vulcanising, hrs. mins.			lb. oz.	
Base A.....	25	1	0	331°	8	1
" .....	"	1	10	"	16	4
" .....	"	1	20	"	Bent double, did not break.	
" .....	"	1	30	"	17	1
" .....	"	1	0	"	18	6
" .....	"	1	10	"	Bent double, did not break.	
" .....	"	1	20	"	21	7
" .....	"	1	30	"	8	6

TABLE III.—TESTS NOS. 3 AND 4.

Test No. 3—Length, 4 ins. ( $2\frac{1}{2}$  ins. between supports). Width,  $\frac{1}{2}$  in. Thickness,  $\frac{1}{64}$  in.

Rubber used.	Getting up, mins.	Time.		Vulcanising. hrs. mins.	Temp. Fahr.	Breaking	
						weight, lb.	Tension. lb.
Base A.....	25			1 0	331°	38	34
" .....	"			1 10	"	78	38
" .....	"			1 20	"	101	78
" .....	"			1 30	"	56	46
" .....	"			1 0	"	80	48
" .....	"			1 10	"	56	58
" .....	"			1 20	"	78	60
" .....	"			1 30	"	64	58
Base D.....	"			1 0	"	44	51
" .....	"			1 10	"	Not tested*	
" .....	"			1 20	"	32	64
" .....	"			1 30	"	Not tested*	
" .....	"			1 0	"	88	64
" .....	"			1 10	"	Not tested*	
" .....	"			1 20	"	78	84
" .....	"			1 30	"	Not tested*	
Base B.....	"			1 0	"	108	71
" .....	"			1 10	"	76	68
" .....	"			1 20	"	46	36
" .....	"			1 30	"	68	79

\*These samples lost.

TABLE IV.—REPEAT TEST AS BY NO. 8.

Length, 4 ins. ( $2\frac{1}{2}$  ins. between supports). Width,  $\frac{1}{2}$  in. Thickness,  $\frac{1}{30}$  in.

Rubber used.	Time.		Temp.* Fahr.	Breaking weight, lb.	
	Getting up, mins.	Vulcanising, hrs. mins.			
Base D.....	40	1 15	315°	7	one side against surface of tin box
" .....	"	"	"	9	"
" .....	"	"	"	18	"
" .....	"	"	"	44	altogether embedded in plaster
" .....	"	"	"	48	"
" .....	"	"	"	70	"
Base A.....	"	"	"	83	"
" .....	"	"	"	78	"
" .....	"	"	"	44½	"

\*Thermometer reading. The one that read 320° in the other experiments.

Discussion. *Mr. J. H. Jones.* In preparing these various rubbers, did Mr. Headridge boil them? There was a great difference in the results as to whether rubber was used dry or moist. He saw that the temperature had been 331° Fahr. Did Mr. Headridge use more than one thermometer? Was it tested by any others to see if it was correct? The temperature seemed abnormal. Were the experiments confined to one or various kinds of rubber? There were no two rubbers alike. The pigments varied. He did not think the tests were of much value except they were made with different rubbers. One rubber would contain a good deal of pigment, and another would possess a large proportion of sulphur. These would not stand the same test. They were perhaps working in the dark in this matter. In the whalebone rubber the pigment would differ from the pigment in an orange rubber. It would bear a greater strain. He had made experiments and tested the thermometer by a gauge, and tested the temperature as the experiment went on. The pigment in some of the rubbers he used had lead in it and turned black. He did not think that metals had much to do with the rubber. He thought they might get a better result if they had a heat not of 331°, but 310°, with a quarter of an hour longer in baking. With regard to alumnium, he had made several tests and had not met with the bulging which had been spoken of, and had used a piece for three years and had never had a lighter or better piece.

The President said with reference to the alumnium, he had the same results as Mr. Headridge. The reason was that the alumnium

had an effect on the rubber. If worn in the mouth some change took place. A chlorid formed which might affect it. The effect seemed to go right through plate and caused bulging.—*British Dental Journal*, Feb. 1900.

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**REMOVAL OF THE GASSERIAN GANGLION FOR NEURALGIA OF FIFTH NERVE.** By Dr. Carl Beck, Chicago. Read before Chicago Dental Society. Dentistry, a specialty par excellence, needs contact with general medicine and surgery, as diseases of the teeth are often only an expression of general diseases and distant pathological changes which, if not recognized, may lead to entirely false treatment. One of the most interesting pathological conditions in this respect is neuralgia of the fifth nerve. Nine times out of ten the dentist will be the first man consulted, as toothache is one of the most prominent symptoms, and though it is only an irradiated pain, it leads with admirable regularity to extraction of the teeth. Long after all the teeth are gone and pain still persists, the diagnosis is made that the nerve or nerves are the seat of pathological change, the teeth only the peripheral end into which it is projected.

This very interesting and comparatively common disease is amenable to different treatment. Many cases yield to medicinal treatment; many are cured by an etiologic treatment, like syphilis or rheumatism; but there are instances of this disease which resist any medicinal or hygienic treatment, and which are turned over to the surgeon to cure by operation if possible. I say if possible, for every surgeon of experience has occasionally a case which remains the same or even gets worse after operation. Not one but many operations are devised, and these unfortunate patients have often had tried on them all the single methods, have had three or four or even more operations before they are cured. As a last resort the operation of removal of the ganglion is done.

I shall not discuss the scores of different surgical methods of treatment of neuralgia of the fifth nerve, but shall describe only the removal of the Gasserian ganglion for cure of the disease, and that only by the temporo-cranial way. The methods have developed gradually from the most simple to the most intricate. First the nerves were cut (neurotomy), then portions excised (neurectomy), then pulled out of their bony canals and twisted out (neurexeresis),

and if this does not help the centrum is cut, the nerves are divided close to their central origin, and inasmuch as there are some cases of poor results after this operation, perhaps some future genius may remove the centrum and succeed, or not, in coping with the dreadful pains which resist all narcotics. On the whole, the removal of the Gasserian ganglion has been successful, and, though the published cases are still countable, the operation is by no means a rare one in the practice of a surgeon.

Let me recapitulate a few anatomical facts. The fifth nerve emerges from the brain with two roots, like any of the vertebræ nerves. The posterior root, consisting of about a hundred bundles of nerve fibers and stronger than the other, is first visible in the groove of the crus cerebelli ad pontem. Its fibers are sensitive. The anterior is thinner and covered by the posterior. It emerges from the gray nucleus of the fourth ventricle, and is first visible coming from the front portion of the pons varoli. Its fibers are motor. These two nerves join, and perforating the dura mater, their course leads toward a shallow depression in the petrosal portion of the temporal bone, called cavum Meckelii. There the posterior sensitive root develops into a ganglion, that is, its fibers spread and ganglionic cells and glia substance develop into a flat body of oblong shape, called the Gasserian ganglion. The motor fibers have no part in this formation. From the convex border of the ganglion three nerves emerge—the ophthalmic, the, supramaxillary and the inframaxillary. Very important structures are in the immediate neighborhood—the carotis interna, meningeal media, the sinus cavernosus. The nerves leave the cranial cavity by different openings—the fissura supraorbitalis, the foramen rotundum and ovale, where the third branch is joined by the motor fibers of the anterior root.

As you see from the anatomical disposition, it must be the aim of the surgeon to remove the sensitive portion of the nerve and to leave the motor. This is very difficult, as they are close together and very deeply situated. (1) The merit of the first attempt belongs to Rose, who in 1891 tried to remove the ganglion or to destroy it by the so-called *transmaxillary* method through the removal of the superior maxillary bone, a method which is all the more dangerous as we leave the cranial cavity in contact with the mouth cavity, full of germs and danger of infection. Novaro has modified this method

in still more brutal way. The work is difficult and unsatisfactory. The danger of laceration of large vessels is great. (2) The pterygoid way, also first described by Rose and later by Andrews. Expose the foramen ovale by temporary resection of the zygomatic and coronoid process of the inferior maxillary bone. This is difficult and dangerous, though not opening into the mouth cavity. This method has had some success. (3) The best way remains, the temporal method. Some surgeons who have chosen this route have not removed the ganglion, but only cut the nerve. Horsley in 1890 pulled out the nerve from the brain substance. Hartley in 1892 cut the second and third branch without removing the ganglion at first, but in later operations removed the same. About the same time as Hartley, F. Krause of Germany made his experiments. According to von Beck's tabulation (1897), there were forty-one cases of intracranial resection of the ganglion, with six deaths and thirty-five cures, if we may say cures in the surgical sense of the word.

My own experience is derived from three cases, one of which died. The death was due to cancer propagated from the parotid gland into the brain. The operation was done as a palliative measure. The other two cases live and are perfectly well. One of these cases was all the more interesting, as the removal of the ganglion was his twelfth operation, his jaw and nerves outside having been removed before without success. I used the somewhat modified Krause method. I did not try to save the cranium, but after making a large flap incision in the temporal region removed skull to the extent of an inch and a quarter or more in radius. Then I separated bluntly the dura mater from the bone and held it back with a wide spatule, so that I could look into the temporal cavity. It is by no means an easy task to control the hemorrhage at this stage of operation, and is made possible only by advancing slowly and plugging the space between the dura and bone. A compression of the brain is indispensable and only by good pressure the field will finally be made visible. At the depth of about an inch we endeavor to cut nerves and extract them; then we cut out the ganglion, which is by no means a large structure. The brain expands quickly and fills out the cavity again, which is closed without drainage. I can recommend the method as a good one even for very advanced cases. The neuralgic pain usually stops at once and forever. The sequelæ, which have been described by some operators as paralysis of eye

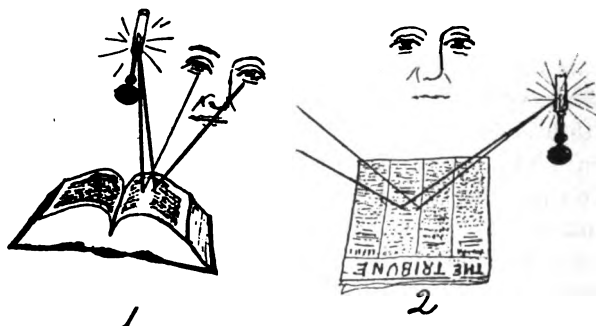


muscles and muscles of the face, and tropho-neurotic changes, have not been observed in my patients.—*Review, April, 1900.*

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**BOOKS ARE INJURIOUS TO THE EYES.** By F. G. Murphy, M.D., Kansas City, Mo. In three ways the reading of books is injurious to the eyes: reading on a curved surface, one's inability to prevent light reflections from entering the eyes when reading from such a surface, and the long lines in most books that run the entire width of the pages.

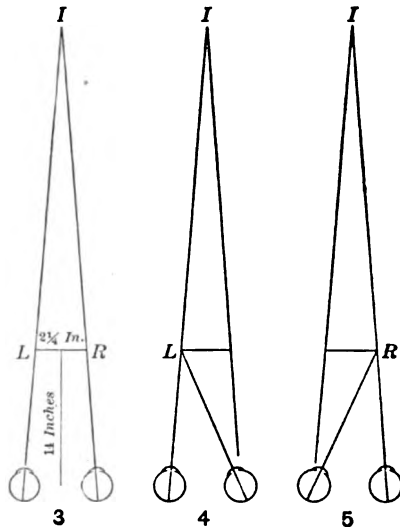
The middle of the lines in most books is from an eighth of an inch to an inch nearer the eyes than the ends of the lines (Fig. 1). This necessitates a constant effort on the part of the ciliary muscles to keep the letters in focus on the retina while the muscles of con-



vergence and divergence are alternately contracting and relaxing. It is all the more tiresome when the reader has not perfect binocular vision. If he has poor vision in the right eye and reads altogether with the left one, he will not see plainly the words next to the binding when reading on the left page (Fig. 1). A flat page, such as that of a newspaper, is always more easily read (Fig. 2). Reading from a book is also made more difficult from the fact that both sides of the page are seldom equally lighted. Would it not be more restful to the eyes if the lines in books were to run parallel to the binding instead of nearly at right angles to it, so that all parts of the lines would be at an equal distance from the eyes and be equally lighted?

As books are now made it is nearly impossible to prevent light reflections from entering the eyes. One cannot look upon a curved surface of any length without the light which shines upon it being

reflected to some extent into the eyes. To read a book it is necessary to have the light come as much as possible from behind the reader, who holds the book slightly to one side. Then as the angle of reflection is equal to the angle of incidence, the reader will unavoidably have the light from nearly the center of the page reflected in his eyes (Fig. 1). If it is a newspaper, which is nearly a flat surface, that is being read, it will not be necessary to have the light come so much from behind, as the entire sheet can be illuminated when the light is at either side without any part of it being shaded (Fig 2). The source of illumination being at the side, the light



reflections necessarily all pass to the opposite side of the reader's head, the angle of reflection being equal to the angle of incidence.

In going through a passenger train one may at any time observe that the passengers who read books have their backs turned more to the windows than do those who read newspapers. In order that the page of a book shall be perfectly lighted it is necessary to have the light come from nearly in front or from behind the reader. In my opinion the arrangements of the desks in the public schools, so that the light may come in at the left side, is not altogether satisfactory. If the student is facing the light and has a shade over his eyes, so that the light from the window will not directly enter the eyes, his book will be perfectly lighted, and no reflections from it

will enter the eyes, provided the light does not strike the book at a greater angle than seventy-five or eighty degrees; and yet to compel students to wear shades would hardly be practicable. There is but one way in which the curved lines may be straightened and the book well lighted, and that is by having the lines printed parallel with the binding. There would be no such thing as a curved line then and the book could be lighted perfectly from the side.

In my opinion the great width of reading columns has also much to do with tiring the ocular muscles. A column that is of less width than the pupillary distance is certainly more easily read than one that is wider. In Figs. 3, 4 and 5 the letter I represents infinity and L and R the distance (two inches and a quarter) between rays of light fourteen inches from the eyes. In reading a column two inches and a quarter in width there is not much strain on the external recti muscles. When the first word in each line is read at fourteen inches the left eye is not turned farther to the left (L in Fig. 4) than it would be to look at the distant object I, and the right eye would be turned no farther to the right when the last word of each line was read than it would be when at infinity (R in Fig. 5).

When the lines are longer than the pupillary distance the reader will follow the lines with his head to relieve the external recti muscles. If in reading a very long line the head be not turned, the first word of each line would be much nearer the left eye than the right, and the last word would be nearer the right eye than the left. The result is a smaller image in the eye farthest from the word. The eye soon tires under these conditions unless assisted by movements of the head, whereas, if the lines were shorter than the pupillary distance, the image in each eye would be practically of the same size, the muscles of accommodation would not be so rigorously taxed, and both the internal and external recti muscles would be greatly relieved.—*N. Y. Med. Jour.*, April, 1900.

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**HEMOPHILIA.** By Charles A. Porter, M.D., Boston. Read before American Academy of Dental Science, Dec. 6, 1899. Fortunately this disease is a relatively rare affection, but as in tetanus, the appallingly fatal results which may follow trivial wounds make it wise for us all to understand something of the general symptomatology of the disease, and to know at least where further knowledge may be acquired on occasion. In the literature scattered cases are

found, dating back as far as the eleventh or twelfth century, where excessive or fatal hemorrhages followed slight wounds; but it was not until 1828, when Schönlein collected and described a number of cases, that the disease received its present name. The popular term "bleeder," first arose on this side of the water.

Legg defines hemophilia as "a disease congenital and hereditary, marked by a tendency to immoderate bleeding on slight causes, lasting generally through the life of the patient, and further accompanied by joint-affections, which are often as wearisome to the patient as the tendency to external hemorrhages is dangerous." From this definition it can be seen that hemophilia proper means much more than a single severe hemorrhage from slight cause, and has nothing to do with bleedings in anemia, Bright's disease, scurvy or jaundice, and is different from the hemorrhages in the new-born which do not tend to recur in later life.

It can be stated with truth that hemophilia is of all diseases the most hereditary; *e. g.*, in Switzerland the affection has been traced back in two families for three hundred years. In the Appleton-Swain families in Massachusetts cases have occurred for nearly two hundred years; and F. F. Brown is quoted by Osler as knowing of a case in the seventh generation. Several cases have been reported where all the male children have died; as bleeders are remarkably prolific, this usually means a large mortality. In one family all the male children died before reaching the age of ten.

Furthermore, the mode of transmission is extremely interesting. This disease affects males much more frequently than females, in the proportion of twelve to one; yet it is through the female line that the disease is almost always transmitted: in a given family the sons are bleeders, the daughters generally healthy; in the next generation the sons of the daughters are bleeders, while the children of the male bleeder are free. Not all the children as a rule are affected, but two or three brothers may suffer.

While by the older writers the Anglo-Germanic races and the Jews were thought to be peculiarly susceptible, it now seems doubtful whether race plays a very important part. Recently cases are reported among the natives of India and Japan.

The time of life at which the hemorrhages take place is variable; rarely in fetal life unusual blood extravasations are reported; in the first few days bleeding is more frequent, and ritual circumcision

among the Jews, celebrated on the eighth day, has often proved fatal in hemophilic children. It is interesting to note that the women in bleeder families, contrary to what might be expected, rarely suffer from profuse menstruation or unusual loss of blood at childbirth.

The hemorrhages in hemophilia may be spontaneous or traumatic; from the mucous membranes; into the skin or subcutaneous tissues; into the joint cavities; from the internal organs, as hematuria of renal origin; and finally, from any wound, ulcer or abrasion of the skin, however trivial—a pin prick, cutting the frenum of the tongue or penis, boring the ears. In childhood epistaxis is the most common manifestation; next come large ecchymoses and subcutaneous hematmata, with or without preceding injury. In later life hemorrhages from the internal organs, and especially recurrent hemorrhages in the joints or periarticular tissues. Probably these joint affections have erroneously led to the conclusion that this disease was related to rheumatism, or purpura rhumatica. More than once knees have been excised by surgeons, with fatal results, under the belief that the joint lesion was tubercular.

The periods especially liable to hemorrhage are the first and second dentitions and puberty. In the great majority of cases some manifestation of the inherited disease has occurred before the fifth year. Grandidier reports one hundred and fifty-two cases in boy bleeders, where eighty-one (more than fifty per cent) died before the eighth year. Patients rarely die from the first hemorrhage. At or about twenty-one is another danger period. When middle life is passed the disease tends to abate, and rarely the diathesis seems to be completely outgrown. This tendency to hemorrhage is undoubtedly variable in a bleeder; a given injury at one time will cause severe loss of blood; at another a similar wound behaves as it would in a normal individual. Damp seasons, exposure to cold, nervous excitement, are factors often spoken of, influences, however, which are always open to question.

Of especial interest to you, of course, are the frequent hemorrhages after operations in the mouth, especially after the extraction of teeth; and tooth-pulling in bleeder families has always been a procedure which the dentist has wished to relegate to his confreres. This trivial operation was four times fatal in one family, and by most authorities is considered unjustifiable except under very pecu-

liar circumstances. The opening of alveolar abscesses has proved more dangerous than allowing them to rupture spontaneously. While it is manifestly impossible for busy dentists or surgeons to inquire in out-patient clinics in regard to hemophilia, it is certainly obligatory that every physician who has treated a bleeder should carefully explain to the patient or his family the grave danger attendant upon any future operation. The points in the past history of a suspected case to be inquired about particularly are excessive hemorrhage from trivial wounds—lancing the gums, nose-bleed, large recurrent ecchymoses, so-called rheumatism in the joints without fever, hemorrhages from internal organs. A family history of bleeding will of course be of great value.

The amount and rapidity of hemorrhage in these cases varies considerably. A sharp loss of blood may immediately follow the extraction of a tooth, which rapidly exsanguinates the patient; or the blood may clot normally at first and the bleeding cease, to be followed in spite of the usual treatment by a continuous slight ooze, which at the end of days or even weeks reduces the patient to a condition of severe anemia or proves fatal. From this condition patients not infrequently slowly recover just as their life is despaired of; indeed, some physicians believe that true cases of hemophilia rarely stop bleeding until almost dead, and having in other cases tried in vain the usual remedies, they calmly await this period.

With regard to the pathology of the disease very little is known. In the majority of autopsies nothing unusual has been found either in the blood or tissues. Some investigators speak of abnormally small arteries, thinning of the middle coat, fatty degeneration of the intima and media. These later changes can be satisfactorily explained by the severe anemia before death. Some find in fresh cases an increased number of white cells; others nothing abnormal. The leucocytosis in late cases is that which accompanies all grave hemorrhages. Wright in certain cases has found that the blood coagulated very slowly, and attributes to this the continuous flow of blood, theoretically due to deficiency of the lime salts or nucleo-albumins. In support of this theory, some bleeder children have undoubtedly an abnormal craving for plaster.

That this delayed coagulability is not always present is shown by the fact that not infrequently a normal clot is formed; yet this is later washed away by the capillary ooze about it. It seems there-

fore that the real lesion must be situated in the capillaries or small arterioles, for here normal thrombosis does not occur, though the blood which flows from the wound may clot in the vessel. Patients with hemophilia are apt to be very thin-skinned, neurasthenic, liable to sudden flushings and vasomotor disturbances; it may be that some hereditary deficiency exists which interferes with the action of the vasoconstrictors.

With such an indefinite, irregular or unknown pathology, it is evident that our treatment must be chiefly empirical, yet always directed towards the formation of a clot *in the vessel walls*. The multiplicity of remedies suggested and tried speaks for their frequent uselessness. I shall therefore speak only of those which have been found successful, or at least rest on some rational basis. The female members of a bleeder family assume a serious risk for their offspring by marriage. Bleeder children should be protected in every way from injury.

Whether iron and other tonics, particularly sulphate of soda, as advocated by Legg, much affect the disease is open to question, but those physicians who have had charge of bleeder families feel sure that bland, unirritating diet, frequent catharsis, and a quiet, unemotional life, with change of climate, have favorably influenced the recurrence of hemorrhage. What interests us most, however, are the measures which may be taken to stop an actual hemorrhage. It is difficult to gather from the literature a definite opinion as to the real efficacy of the ordinary styptics given internally or applied locally, for after the administration of certain drugs it is often hard to determine whether the hemophilia ceased because of their administration or spontaneously. Ergot seems inefficient. It seems also doubtful if iron given internally can effect the coagulability of the blood. The two drugs which are spoken of most favorably are hydrastis canadensis, in doses of thirty minims every four hours, especially valuable in spontaneous hemorrhage from internal organs, and dilute sulphuric acid, twenty minims in an ounce of water four times a day. Sidal used the latter drug successfully in three cases, and stopped the hemorrhage in forty-eight hours, whereas the cases had previously bled to exsanguination. Perhaps the administration of calcium chlorid is the most scientific treatment. Wright and J. Clifford Perry both report cases where this drug was used with wonderful success: one a man of twenty, alveolar abscess, incision one-

eighth inch long, profuse hemorrhage in spite of pressure and styptics. He had several times bled until he fainted. Two brothers had died in infancy after trivial wounds. Calcium chlorid was given in grain doses every two hours, and after three doses the blood formed a firm clot. Wright reports one case in which the coagulation time exceeded fifty-four minutes. After two drams of calcium chlorid had been given at two-hourly intervals the coagulation time was reduced to twenty-five minutes, and after two more doses, to thirteen and one-half minutes. In a normal case the coagulation time was reduced, after a few doses, from fourteen minutes to six and three-fourths minutes. This drug is therefore worthy of trial, but in several cases no benefit has resulted.

Inhalations of carbon dioxid gas have been successful; also continuous inhalations of oxygen. Though the dangers and difficulties of transfusion of human blood are very great, I see no reason why it should not be done as a last resort. Fry reports three very interesting and successful cases where he infused normal horse serum. One patient received in all three hundred cubic centimetres; the improvement was remarkable, hemorrhage ceased and no harm resulted from these injections.

Whichever of these general measures the surgeon chooses to adopt, there is no doubt that absolute quiet should be insured to the patient. Davies, who has had marked success with two hemophilic families, placed the patient immediately on the occurrence of hemorrhage in a dark, quiet room, forbidding conversation, and withholding food entirely for two days. The hunger was relieved by small doses of opium, the thirst by a little ice water. He has had no success whatever with any general or local styptics.

The local measures may be divided into pressure and styptics. It seems of great importance that before pressure is applied the cavity should be thoroughly cleared of clots. Finger pressure is most intelligent, but has usually to be supplemented by whatever mechanical device the dental surgeon can devise. The best local styptic is gauze dipped in perchlorid of iron and firmly packed into the cavity. The jaws may be held together with elastic bands or an interdental plate or splint fitted. A wooden or cork peg has been driven through the gauze into the alveolus with success, but unfortunately oozing often occurs subsequently from the ulcerated gum. There are those who believe that the frequent traumata in



connection with packings induce fresh hemorrhage and do more harm than good. Antipyrin solution, twenty or thirty grains to the ounce, applied on absorbent cotton, is a powerful styptic. The actual cautery, which often temporarily arrests the bleeding, rarely is of permanent benefit. Hydrogen peroxid is a valuable styptic. Davies has had remarkable success with ethyl chlorid. Immediately after the extraction of the tooth he freezes the clot with a spray and maintains this condition for several minutes. In many cases he has not failed to arrest the hemorrhage. Normal human blood has been poured into the wounds of hemophilic patients and successes have been reported. General cardiac stimulants, unless absolutely demanded, are definitely contraindicated, especially alcohol. It is hard to see of what use salt infusion can be, for the previously diluted blood would be rendered thereby more incoagulable.

These are the measures which appear most useful: 1. Absolute quiet. 2. No food for two days. 3. Opium in small doses. 4. Internally: (a) Dilute sulphuric acid; (b) *hydrastis canadensis*; (c) calcium chlorid. 5. Serum infusion of direct blood transfusion only as a last resort. 6. Locally: (a) Cleaning out the clot; (b) freezing with ethyl chlorid; (c) antipyrin or peroxid; (d) normal blood for clotting. 7. And finally pressure evenly and firmly applied by whatever device will cause least disturbance or sloughing. If in spite of these measures, carefully carried out, the patient dies, the surgeon has done all in his power, and as I said, most cases come near to death before hemorrhage ceases.—*International, May, 1900.*

\* \* \*

**HYPERESTHESIA OF THE TONGUE FROM CONTACT WITH THE MUCOUS MEMBRANE OF THE JAW.** By Dr. M. Gonsalves, Lisbon, Portugal. Two years ago a gentleman, professor, consulted me by the advice of his physician about a very severe pain near the upper first molar. The pain started from that tooth, radiating to the eye and head as an electric flash, whenever he touched that tooth with the tongue, and remained for a long time on the corresponding side of this organ, running from the point back to the root of the tongue and tonsils. The slightest motion of the tongue touching the tooth would provoke the pain, so that he could not speak.

The tooth was carious and the pulp dead, but the margin of the

cavity did not interfere with the tongue, nor was it irritated on the part facing the tooth; no periosteal inflammation; no soreness to percussion. I seized the point of the tongue with a napkin and drew it out as far as possible. This revealed a series of congested papillæ, very hard, and of a deep violet color on the left side of the glottis. Between them, running from back forward, there was a kind of a crevice or deep cut with ulcerated granulations on the margins. My first impression was that I was in presence of a cancer, though the odor exhaled was not characteristic. I told patient to bring his physician the next day, when I showed him what I had discovered. The doctor seemed surprised and his impression was the same as mine. Next day we had a consultation with three doctors. They agreed that it might be cancer, but it was not decided. Patient never had syphilis, to which ulceration might have been attributed.

In regard to the tooth, it was decided that it must be removed. That was done with no consequent relief to the patient. The second bicuspid and all molars had been extracted long before, so there was no tooth to interfere with the tongue on that side. Still, when the tongue touched the gum about the first molar region a violent pain of equal character was excited. The patient went home and continued treatment under the care of the three doctors. I knew later on that by the use of local and internal medicines the patient had recovered from the ulceration at the root of the tongue, but the hyperesthesia continued growing more and more intense until he was in a desperate condition. The doctors decided upon an operation and removed the alveolar ridge from the first bicuspid back to the tuberosity with no success. In short, since then they have tried a lot of drugs, electricity, ointments, baths, etc., with no better result.

The patient found that if the part be protected he was relieved, and so used over the gum a piece of thick paper which remained in place when moistened with saliva. While the paper was there he could speak without disturbance. This suggested the idea of protecting the parts with a plate. He went to a dentist who took an impression of the mouth and made a rubber plate covering the hard palate and alveolar ridge, without teeth and smoothly polished. Since then, about three months ago, all suffering has ceased. The patient has resumed his lectures and speaks about two hours three days in the week without interruption.—*Items, April, 1900.*

# The Dental Digest.

PUBLISHED THE TWENTY-EIGHTH DAY OF EVERY MONTH

At 2231 Prairie Avenue, Chicago,

Where All Communications Should be Addressed.

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## Editorial.

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### NATIONAL DENTAL ASSOCIATION.

The arrangements for the meeting of this organization, which will be held at Old Point Comfort, Va., July 10-13, 1900, are about completed. A large number of good papers are promised, and we print in this issue a partial list of same. A rate of a fare and one-third on the certificate plan has been granted by most of the railroads. The Hotel Chamberlin will be headquarters, and the meetings will be held therein. No progressive practitioner can afford to ignore this meeting of his national association.

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### HARLAN HAS A BAD SPELL.

"TOO CONTEMPTIBLE.—THE DENTAL DIGEST for April has for its sole editorial one entitled 'Harlan, Holbrook and Hunt—The Disgraceful Triumverate,' (*sic*). It is too contemptible to be dignified with an answer. We are not adepts in Billingsgate."

The above is an "editorial" from the May issue of the *Dental Review*. Let it be clearly understood that we do not for one moment feel that any apology is due the editor of that journal for our criticism of him last month. On the other hand, he owes an explanation and abject apology to the entire dental profession, and to the Protective Association especially, for having defamed and insulted them and that organization by publishing Holbrook's scurrilous letter, the statements in which he knew to be false and intended only to injure the Association.

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### THAT ANONYMOUS CIRCULAR.

Our readers will remember that in the February number of this journal we printed in full an anonymous circular letter addressed "To the Teachers of the Dental Colleges of America." This circular was a dishonest but ingenious attempt to make it appear that the faculties of the various colleges of the country had a serious griev-

ance against this journal. It was intended to show that we were discrediting the profession abroad by slandering the educational institutions of the United States. We went into the matter thoroughly at the time and have since received many evidences from the deans of schools and other college men that this nameless screed does not represent anything except the personal malignity of its author. We advert to the matter at this time to direct the attention of the National Association of Dental Faculties to the fact that this anonymous circular was ostensibly issued with their approval, and that it is incumbent upon them not only to officially disclaim responsibility for it, but to make a vigorous effort to discover the author who brought the Association into disrepute and then cowardly concealed his identity. We have been informed that the writer of this circular belongs to the Faculties' Association, and there should not be much difficulty in compelling him to apologize for the stigma he has put upon that honorable body.

### MAKE THEM SHOW THEIR COLORS.

In an editorial in the April issue of the *DIGEST* we reproduced a letter written by a tool of the International Tooth Crown Co., which had been printed entire by the editors of the *Indiana Dental Journal* and the *Dental Review* in their publications, and with some of the most slanderous portions omitted, by another journal, whose editor unwisely, but we doubt not, with the best intentions in the world, commented on same in an editorial. We discussed this letter and showed why such a communication was given space in those publications. Since then we have received several hundred letters from leading men of the profession, expressing their confidence in the Protective Association and its management, and urging that the work be not given up simply because of these attacks from outside the organization. At their annual meetings held during the month of May three state societies passed resolutions, and we do not doubt that they express the sentiments of leading dental societies of other states, and of the thinking men of the profession generally. Following are the resolutions :

**RESOLUTIONS REGARDING DR. J. N. CROUSE AND THE DENTAL PROTECTIVE ASSOCIATION, ADOPTED BY THE ILLINOIS STATE DENTAL SOCIETY,  
AT SPRINGFIELD, MAY 9, 1900.**

In view of the recent activity on the part of the International Tooth

Crown Co., their agents and allies, both in and out of the profession, and the appearance at the same time in some of the dental journals of articles reflecting on the management and tending to destroy confidence in the Dental Protective Association, the Illinois State Dental Society, in thirty-sixth annual meeting assembled, deems it most opportune at this time to again put on record its confidence in and loyalty to the Association and its management, which has made of it such a wall of protection to the entire profession.

This Society desires also in the most emphatic manner to express its confidence in the personal integrity of Dr. J. N. Crouse, and hereby records its deep appreciation of the unselfish personal sacrifices that he has so freely made for so many years for the good of the cause.

This Society considers the cause of the Dental Protective Association the cause of the profession, and it condemns, as inimical to the interests of the entire profession, the circulation of slanders by traveling men and the publication of articles that are calculated to weaken the hands of those who are fighting our battles and to put weapons into the hands of our enemies. And this Society hereby calls upon all those who have the good of the profession at heart to give the Association a most cordial and unqualified support, and counsels them to show in no uncertain way their utter disapproval of all those who give aid and comfort to the common enemy.

A. H. PECK, Sec'y. (Signed)

C. B. ROHLAND,  
E. K. BLAIR,  
J. G. REID,  
Committee.

#### RESOLUTIONS PASSED BY NEW YORK STATE SOCIETY.

ALBANY, N. Y., May 9, 1900.

*Resolved*, That the Dental Society of the State of New York indorses and approves of the Dental Protective Association, and emphatically depreciates the formation of other societies or organizations for similar or divergent purposes.

*Resolved*, That we express anew our loyalty to Dr. Crouse, and extend to him our hearty appreciation of and confidence in his work as chairman of that Association.

W. A. WHITE, Sec'y.

#### RESOLUTIONS PASSED BY CONNECTICUT STATE SOCIETY.

HARTFORD, Conn., May 17, 1900.

*Resolved*, That the Connecticut State Dental Association fully indorses the action of Dr. J. N. Crouse in his relation to the dental profession and to the Protective Association. We urge him to continue in the good work which we recognize has been accomplished at great sacrifice of time and money, and which we feel could have been done by no other member of our profession.

EDWARD EBERLE, Sec'y.

In the face of present conditions the supply houses and their employes, who have been circulating and printing matter of various kinds inimical to the best interests of the Protective Association and

the dental profession, must now do either one of two things—confess that in the action taken and spirit shown by them they are wholly in the wrong, and that they have been on the opposite side because they wished to see the Association wiped out, or take issue with the sentiments in favor of the Association expressed by prominent men and societies of the United States. The time has come when the supply houses and their agents must cease to be claw-footed, so that they may stick on either side of the fence, for the dental profession demands to know who are and who are not its true friends. The membership of the Protective Association will await with interest the action of these parties.

The profession is rapidly awakening to the fact that aside from the International Tooth Crown Co., which is avowedly warring against the Protective Association, all the opposition to our organization has come from the Dental Trust and its emissaries. The S. S. White Co. not long ago published a circular stating that no dentist need be afraid that the Crown Co. would sue him for using the Logan and other crowns manufactured by the White Co., and the whole tenor of their circular was to the effect that the profession need not fear the Crown Co. We strongly denounced the circular in the January DIGEST and exposed the motives of the S. S. White Co. in issuing same, openly accusing them of having in view only the belittlement of the Protective Association, yet they did not dare reply, thus avowedly confessing that our accusations were well founded. The traveling men employed by the Trust supply houses have in their peregrinations throughout the country told all manner of vicious falsehoods about the Protective Association and its management, and have done everything in their power to shake the confidence of the dentists in our organization and to prevent them from joining with us. The Trust editors have not hesitated to print matter derogatory to the Association and ourselves, although they knew that their information was not founded upon facts. Can a clearer case be made out against this gigantic octopus, which endeavors to hold the dental profession entirely in its grasp?

Last month we showed that the Crown Co. was trying by every means to wear out and break up the Protective Association, and its action during the past month has confirmed our statements. The Association has had to appear in various eastern cities on two separate occasions during May in behalf of members sued, and the

Crown Co. has adopted the most vindictive and unusual legal measures, on one occasion petitioning the court that the Association's attorney be fined \$1,000 and be put in jail for six months, but happily they failed in this. We have no doubt whatever of the eventual outcome of this fight, for the Association has sufficient funds to carry on the defense for some time to come, as well as the necessary evidence, etc. The Crown Co. has, however, nearly four years more in which to collect royalty if its claims can be established, and it is necessary for the members of the Protective Association to stand firmly together and present a bold front to our enemies. An organization embracing the 6,000 leading dentists of this country can, if it has a singleness of purpose, cope successfully with all the abuses which have fastened themselves upon the dental profession. If you do not approve of such actions, the way to stop the attacks on the Association by Trust agents and journals is to refuse to admit either of them to your offices.

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## Notices.

### MISSOURI STATE DENTAL ASSOCIATION.

The thirty-sixth annual meeting of this society will be held July 10-18, 1900, at Louisiana, Mo. A cordial invitation is extended to all reputable practitioners to attend.

B. L. THORPE, Cor. Sec'y, St. Louis.

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### WISCONSIN STATE DENTAL SOCIETY.

The thirtieth annual meeting of this organization will be held at La Crosse July 17-19, 1900. A cordial invitation is extended to all members of the profession to be present.

W. H. MUELLER, Sec'y, Madison.

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### CONNECTICUT STATE DENTAL ASSOCIATION.

At the annual meeting of this organization, held May 15-17, 1900, the following officers were elected for the ensuing year: Pres., A. C. Fones; V. P., Henry McManus; Sec'y, E. Eberle; Ass't Sec'y, C. C. Prentiss; Treas., E. B. Griffith; Ex. Com., F. T. Murlless, Jr., G. O. McLean, E. B. Abbey.

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### TRI-STATE DENTAL ASSOCIATION (ILL., KY., IND.)

At the second annual meeting of this organization, held at Evansville, Ind., May 8-11, 1900, the following officers were elected for the ensuing year: Pres., W. H. Pitcher, Ky.; Ind. V. P., F. J. Raymond; Ky. V. P., I. B. Howell; Ill. V. P., W. D. Davisson; Sec'y, W. H. Brosman, Ill.; Treas., M. M. Haas, Ind.; Ex. Com., C. E. Whitesides. The next annual meeting will be held in Paducah, Ky., the second Tuesday in May, 1901.

**TEXAS STATE DENTAL ASSOCIATION.**

At the annual meeting of this organization, held May 15-17, 1900, the following officers were elected for the ensuing year: Pres., O. B. Love; First V. P., H. L. Pearson; Second V. P., J. M. Nash; Sec'y and Treas., J. G. Fife; Member Ex. Com., B. Jones.

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**IOWA STATE DENTAL SOCIETY.**

At the annual meeting of this society at Dubuque, May 1-4, 1900, the following officers were elected for the ensuing year: Pres., T. A. Gormley; V. P., E. D. Brower; Sec'y, I. C. Brownlie; Treas., W. R. Clack. The next annual meeting will be held at Clear Lake.

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**MASSACHUSETTS BOARD OF DENTAL EXAMINERS.**

There will be a meeting of the above organization in Boston June 20-21, 1900. Applications must be filed with the secretary before June 18, and application blanks and further information may be obtained from him.

G. E. MITCHELL, Sec'y, 25 Merrimac St., Haverhill.

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**ALABAMA STATE DENTAL ASSOCIATION.**

At the annual meeting of this organization May 8-10, 1900, the following officers were elected for the ensuing year: Pres., J. P. Corley; First V. P., W. J. Reynolds; Second V. P., H. D. Barr; Sec'y, J. T. Cook, Jr.; Treas., W. B. Fulton; Ex. Com., J. P. Corley, J. T. Cook, Jr., R. P. Brown, A. Sledge, H. D. Boyd, Jr.

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**NATIONAL ASSOCIATION OF DENTAL EXAMINERS.**

The seventeenth annual session will be held at Hotel Hygeia, Old Point Comfort, Va., beginning at 10 a. m. July 13, 1900, and continuing in session three days. Hotel rates will be \$2.50 per day. Delegates will present certificates signed and sealed by the officers of their respective boards.

CHAS. A. MEEKER, Sec'y, Newark, N. J.

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**NEW YORK STATE DENTAL SOCIETY.**

At the thirty-second annual meeting of this organization May 9, 1900, the following officers were elected for the ensuing year: Pres., J. J. Hart; V. P., R. H. Hofheinz; Sec'y, W. L. White; Treas., C. W. Stainton; Correspondent, H. D. Hatch. Wm. Jarvie and F. C. Walker were recommended for appointment on the Dental Examining Board.

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**TENNESSEE STATE DENTAL ASSOCIATION.**

At the thirty-third annual meeting of this organization, held May 9-10, 1900, the following officers were unanimously elected for the ensuing year: Pres., W. M. Slack; First V. P., J. A. Dale; Second V. P., S. Dixon; Sec'y, A. S. Page; Treas., J. D. Towner; Cor. Sec'y, A. R. Melendy; Ex. Com., A. R. Melendy, one year; J. T. Meadors, two years; J. W. Peete, three years. The next meeting will be held at Mont Eagle.



**NEBRASKA STATE DENTAL ASSOCIATION.**

At the annual meeting of this organization, held May 15-17, 1900, the following officers were elected for the ensuing year: Pres., W. H. Sherraden; V. P., L. Mills; Rec. Sec'y, W. R. Clark; Cor. Sec'y, F. D. Sherwin; Treas., H. T. King. Omaha was selected as the next meeting place. The society refused to admit to membership a dentist who advertised.

**KANSAS STATE DENTAL ASSOCIATION.**

At the twenty-ninth annual meeting of this organization, May 1-4, 1900, the following officers were elected for the ensuing year: Pres., R. Matthews; First V. P., O. H. Simpson; Second V. P., E. Burgstresser; Sec'y, J. W. O'Brien; Treas., S. J. Renz; Member Board of Censors, G. Losh. The next annual meeting will be held the first week in July, 1901, at Ottawa.

**INTERNATIONAL DENTAL CONGRESS RECEPTION COMMITTEE.**

The following named gentlemen constitute a reception committee to look after American practitioners who attend the Dental Congress at Paris: Dr. DuBouchet, Pres., 8 Blvd. Des Capucines; Dr. Roussel, Sec'y, 74 Blvd. Hausmann; Drs. Barnett, Bogue, Crane, Daboll, I. B. and W. Davenport, Fay, Gires, Hotz, Lie, Levett, Meng, G. and J. Ryan, J. H. Spaulding, Silva.

**COLORADO STATE DENTAL ASSOCIATION.**

The fourteenth annual meeting of this organization will be held in Boulder June 12-14, 1900. Everything points to an interesting and successful meeting, and it is earnestly desired that as many dentists as possible in the state be in attendance. Members of the profession in neighboring states are cordially invited to be present. FLORENCE S. GREEN, Cor. Sec'y, Denver.

**AMERICAN DENTAL CLUB OF PARIS.**

PARIS, April 26, 1900.

The American Dental Club of Paris desires to make known to all American dentists visiting Paris for the International Dental Congress that the members of the club place at their disposal some rooms which are in a central location, 40 Rue des Mathurins, where mail can be sent and where light refreshments can be obtained.

The club extends a cordial invitation to all their American confreres to make use of these rooms as a general headquarters from August 5 to August 15.

C. V. DuBOUCHET, *President*, 8 Boulevard des Capucines.

GEO. A. ROUSSEL, *Secretary*, 74 Boulevard Hausmann, Paris.

**NEW JERSEY STATE DENTAL SOCIETY.**

The thirtieth annual meeting of this body will be held at the Auditorium, Asbury Park, N. J., July 18-20, 1900. Five excellent papers by well-known dentists have been secured, and as usual the features of the clinics on oral work, prosthetic dentistry, electric-furnace porcelain work, gold crowns,

bridges and allied subjects will be interesting and instructive. The exhibits will be the largest and most comprehensive ever attempted by the society. The clinics will be under the personal supervision of Frank Hindle of New Brunswick, and the exhibits under T. Edsall Riley of Newark, and aids. Headquarters will be at the Hotel Columbia, adjoining the auditorium, and the rates will be \$2.50 and \$3 per day. The profession are cordially invited to participate.

C. A. MEEKER, Sec'y, Newark.

#### ILLINOIS STATE DENTAL SOCIETY.

At the thirty-sixth annual meeting of this society held in Springfield, May 8-11, 1900, the following officers were elected for the ensuing year: Pres., J. G. Reid, Chicago; V. P., M. L. Hanaford, Rockford; Sec'y, A. H. Peck, Chicago; Treas., C. N. Johnson, Chicago; Librarian, J. T. Cummins, Metropolis City; Ex. Com., C. R. Taylor, Streator; Com. on Science and Literature, A. W. Harlan, Chicago; Com. on Art and Invention, H. J. Goalee, Chicago; Supervisor of Clinics, J. E. Hinkins, Chicago; Ex. Council (terms to expire 1903), C. B. Sawyer, Jacksonville; M. L. Hanaford, Rockford; C. B. Rohland, Alton; Board of Examiners, C. M. Robbins, Carthage; C. C. Corbett, Edwardsville; S. F. Duncan, Joliet; Com. on Ethics, C. B. Sawyer, Jacksonville; J. D. Nicol, Peoria; Edmund Noyes, Chicago. The next session will be held at Rockford the second week in May, 1901.

#### LATEST DENTAL PATENTS.

- 647,557. Dental combination tool, H. L. Cruttenden, Northfield, Minn.
- 647,574. Dental dam-holder, S. M. Myers, Cleburne, Tex.
- 647,736. Dental handpiece slip-joint, J. D. Wilkens, assignor to Dental Protective Supply Co., Chicago.
- 647,956. Dental tool, N. R. Ford, New York City.
- 648,106. Dental engine, H. W. Heinz, Pittsburg.
- 648,196. Dental matrix-holder, W. P. Dickinson, Minneapolis, assignor to J. W. Ivory, Philadelphia.
- 648,242. Sterilizer for dental or surgical instruments, J. A. Cronkite, Los Angeles, Cal.
- 649,234. Dental tool-holder, A. Chiavara, Catania, Sicily.
- 649,336. Dental chair, J. W. McConnell, Cornelia, Ga.
- 649,643. Shaft coupling for dental handpieces, R. F. Ludwig, Chicago.
- 649,742. Dental forceps, B. B. Mories, Markeson, Wis
- 649,854. Dentist's mouth dilator, J. A. W. Lundborg, San Francisco.

#### PARTIAL PROGRAM OF NATIONAL DENTAL ASSOCIATION.

*Section V. Anatomy, Surgery and Pathology.* The chairman of the section selects the subjects upon which papers are to be presented, and names the essayists. He has for this year prepared the following program:

*Anatomy.* Source of Nutrition of the Dental Pulp, A. O. Hunt. The Evolution of the Bunodont from the Haplodont Forms of Teeth, A. H. Thompson.

*Pathology.* The Pathological Changes in Pyorrhea Alveolaris, M. L.

Rhein. Oral Manifestations of Syphilitic Infection, illustrated by the Stereopticon, W. C. Barrett.

Surgery, Surgical Treatment of Fractures of the Maxillæ, J. S. Marshall. Antiseptic Surgery of the Face and Mouth, W. H. G. Logan.

*Section III. Papers and Essays.* Grinding the Natural Teeth for the Purpose of Contouring the Interproximate Space and Improving Point of Contact, L. P. Leonard. Treatment of Root Canals, Jules J. Sarrazin. Treatment of Root Canals, A. E. Webster. Porcelain Inlays, J. E. Wilkin-son. Porcelain Inlays, Joseph Head. Papers by C. N. Johnson, E. C. Kirk and E. K. Wedelstaedt; subjects not announced. Some Suggestions in the Treatment of Teeth, A. C. Brewer.

*Section III. Clinics.* Treatment of Pyorrhea Alveolaris, Howard T. Stewart. Use of Manu-Dynamometer and Gnatho-Dynamometer, G. V. Black. Porcelain Crown and Bridge Work, with Models, H. J. Goslee. Im-plantation as a Radical Cure for Pyorrhea Alveolaris, Illustrated with Skio-graphs, Jas. E. Keefe. Cavity Preparation, C. N. Johnson. Gold Inlays, W. V-B. Ames. Method of Combining Cement and Amalgam for Filling Teeth, L. C. Taylor. Jenkins Porcelain for the Production of Buccal Faces of All Gold Crowns, George Evans.

*Section II. Dental Education, etc.* Our Dental Educational System, M. F. Ault,

## News Summary.

M. Y. HART, a dentist of Fredericksburg, Va., died May 18, 1900.

S. W. HOWE, a dentist at North Attleboro, Mass., died May 14, 1900.

W. S. CLARK, of Lagrange, Ill., died at Rockdale, Texas, May 20, 1900.

S. O. BRITTON, 58 years old, a dentist at North East, Ind., died May 4, 1900.

LOUIS BLANKENBURG, a dentist of Chicago, was killed in a quarrel March 19, 1900.

G. W. HOFFMAN, a dentist at Hartford, Vt., was killed by outlaws April 26, 1900.

A. P. TODD, a dentist of New York City, 50 years old, died of heart disease May 16, 1900.

D. S. PARKER, a well-known dentist of South Boston, died of pneumonia April 29, 1900.

J. B. NICHOLS, 80 years of age, and a practicing dentist since 1845, died at Potsdam, N. Y., May 8, 1900.

W. T. ARRINGTON, 60 years old, a prominent dentist of Memphis, Tenn., died April 26, 1900, after a week's illness.

O. F. CORMAN, 68 years of age, died at Decatur, Ill., May 2, 1900, where he had been practicing dentistry since 1865.

J. M. BEACH, 87 years old, a dentist at Princeton, Ill., died May 8, 1900. He started practice in Pittsburg, Pa., in 1840.

BE NOT ANGRY with your creditors, if they importune you. It is nobler to forgive and forget them.—*Roche*.

E. C. MCSHERRY, who twenty-five years ago practiced dentistry in Scranton, Pa., died at Frederick City, Md., May 8, 1900.

CARL D. LUDWIG, formerly a dentist at New Orleans, but residing for several years past at Tangipahoa, La., died May 12, 1900.

BIRMINGHAM DENTAL COLLEGE held its annual commencement exercises April 26, 1900, and conferred degrees on ten graduates.

OHIO MEDICAL UNIVERSITY held its annual commencement exercises April 24, 1900, and conferred degrees on forty-two students.

VANDERBILT UNIVERSITY DENTAL DEPARTMENT held its commencement exercises April 27, 1900, and forty-one students were graduated.

C. H. RICHTER, a well-known dentist of Milwaukee, Wis., accidentally shot himself while hunting May 8, 1900, and was instantly killed.

T. L. VANDERBECK, 78 years of age, a dentist at Philadelphia, died May 7, 1900. He started practice in Philadelphia in 1847, but retired five years ago.

A MAN IN CHICAGO died April 25, 1900, and his death is thought to have been due to shock from having several teeth extracted some weeks previous.

INCONSISTENT.—The man who is continually telling you that life isn't worth living is the first one to send for the doctor if he has an ache or pain.

SERIOUS MISTAKE.—The mistake of a doctor is less serious than that of the dentist, because the former fills only six feet while the latter fills an "acher."

BALTIMORE COLLEGE OF DENTAL SURGERY held its sixtieth annual commencement exercises April 30, 1900, and diplomas were awarded seventy-four graduates.

SALT LAKE CITY DENTISTS at their May meeting started a move towards adopting a uniform scale of charges, and it is believed that the measure will go through.

BALTIMORE STATE BOARD OF DENTAL EXAMINERS at a meeting May 8, 1900, elected A. C. McCurdy president and F. F. Drew secretary and treasurer for the ensuing year.

CROWNS IN THE HEREAFTER.—Perhaps the International Tooth Crown Co. would like to collect royalty from every one who hopes to wear a crown in the great hereafter.

COLORADO COLLEGE OF DENTAL SURGERY held its commencement exercises April 25, 1900, and graduated eleven students. The exercises were followed by a banquet.

GEORGIA STATE BOARD OF DENTAL EXAMINERS recently turned down sixteen out of forty-one applicants for licenses, on the ground that they had failed to satisfactorily pass the examinations. The applicants passed resolutions denouncing two members of the board and asking for their removal. There is no appeal, however, from the board's decisions.

**LAKE ERIE DENTAL ASSOCIATION** at its annual meeting May 1, 1900, elected the following officers: Pres., A. Johnson; V. P., C. R. Brooks; Sec'y, W. E. Van Orsdell; Treas., J. H. Heivley.

**WASHINGTON DENTAL EXAMINERS** at their meeting May 16, 1900, elected the following officers: Pres. C. A. Darling; Sec'y, W. E. Burkhart; M. D. Thurston, F. W. Rees, C. A. Holmes.

**FLORIDA STATE DENTAL ASSOCIATION** at its annual meeting May 1-3, 1900, elected the following officers: Pres., W. G. Mason; V. Ps., J. E. Chace, D. D. Beekman; Sec'y and Treas., C. H. Fink.

**NIAGARA (N. Y.) FRONTIER DENTAL ASSOCIATION** at its April, 1900, meeting elected the following officers: Pres., G. W. Pringle; V. P., D. M. Thompson; Sec'y, A. B. McGee; Treas., J. L. Dudley.

**COLUMBUS (O.) DENTAL SOCIETY** at its fourth annual meeting April 30, 1900, elected the following officers: Pres., T. R. Chapman; V. P., C. A. Harvey; Sec'y, H. Seamans; Treas., A. V. Ross.

**POOR SWISS.**—According to a report given in a Swiss Exchange, of 393 operations performed at the dental polyclinic of the University of Zurich, from Aug. 4 to Oct. 22, 1899, 378 were extractions.

**OKLAHOMA DENTAL ASSOCIATION** at its annual meeting, May 2, 1900, elected the following officers: Pres., E. E. Kirkpatrick; V. P., E. E. Clifford; Sec'y and Treas., A. D. Case; Cor. Sec'y, M. L. McConn.

**DELAWARE DENTAL EXAMINERS.**—On May 17, 1900, Gov. Tunnell appointed the following dentists as members of the state board of dental examiners: R. C. Jones, C. R. Jefferies, T. H. Gilpin, J. C. Styles.

**ILLINOIS SCHOOL OF DENTISTRY** held its second annual commencement exercises May 4, 1900, and conferred degrees on twenty-two graduates. The doctorate address was delivered by E. DeWitt Brothers.

**LEBANON VALLEY DENTAL ASSOCIATION** on May 16, 1900, elected the following officers: Pres., W. D. Delong; V. P., A. S. Koser; Rec. Sec'y, H. J. Herbein; Cor. Sec'y, P. K. Filbert; Treas., B. Wagner.

**DETROIT DENTAL SOCIETY** at its annual meeting May 14, 1900, elected the following officers: Pres., J. Young; V. P., M. Stafford; Sec'y, C. Burton; Treas., J. S. Hall; Member Board of Censors, J. Collins.

**EASTERN INDIANA DENTAL ASSOCIATION** at its thirtieth annual meeting, May 1-3, 1900, elected the following officers for the ensuing year: Pres., J. R. Clayton; V. P., H. C. Sexton; Sec'y and Treas., A. T. White.

**MONTANA STATE BOARD OF DENTAL EXAMINERS** at its annual meeting May 7, 1900, elected the following officers for the ensuing year: Pres., G. W. Pelzer; V. P., E. A. Myers; Treas., H. J. Worth; Sec'y, D. J. Walt.

**STATE BOARDS ACTIVE.**—"Dr." Blair, a traveling dentist of Indiana; C. E. Camp and J. S. Brubacker of West Virginia, J. Rice of Wisconsin, Claud Ferguson of Utah, and H. E. Hickman of Indiana have been arrested by the respective examining boards of those states for practicing dentistry without a license.

**NOT NECESSARILY SLANDEROUS.**—An accusation of the use of morphin, the court of civil appeals of Texas holds, in *King vs. Sassaman*, is not actionable per se —*Jour. A. M. A.*

**OHIO COLLEGE OF DENTAL SURGERY** held its fifty-fourth annual commencement exercises May 10, 1900, and conferred degrees on sixty-two graduates. These held a reunion and banquet before the graduating exercises.

**NORTHWESTERN UNIVERSITY DENTAL SCHOOL** held its annual commencement exercises May 2, 1900, and one hundred and eighty-three students received diplomas. The doctoorate address was delivered by Prof. J. Taft.

**SOUTHERN WISCONSIN DENTAL ASSOCIATION** at its sixth annual meeting May 1, 1900, elected the following officers: Pres., C. T. Peirce; First V. P., G. W. Snyder; Second V. P., A. D. Gropper; Sec'y, J. H. Reed; Treas., W. G. Hales.

**WILMINGTON DENTAL MANUFACTURING COMPANY** litigation came to an end May 1, 1900, when the receiver was discharged, as the affairs of the company had been cleared up. The settlement with creditors was on a basis of 44%.

**TOOTH FOR AN ALIBI.**—A dentist in New York City recently testified that he had extracted a tooth in New York for a man accused of post-office robbery in Illinois, on the date of robbery, so that the prisoner could not be the guilty person.

**LIBERAL.**—We have received three copies of the January issue of a dental journal with a fine cover, three copies of another, and still two copies of another. Circulation is undoubtedly very large and the policy of the management liberal.

**HARVARD ODONTOLOGICAL SOCIETY** at its January, 1899, meeting elected the following officers: Pres., Dwight M. Clapp; Rec. Sec'y, R. T. Moffatt; Treas., L. F. Bigelow; Editor, H. W. Haley; Ex. Com., J. T. Paul, W. P. Cooke, F. T. Taylor.

**FRATERNAL TRIBUNES SUE.**—W. C. Sensibaugh, a dentist of Port Byron, Ill., has brought a \$50,000 damage suit against this order, claiming that during initiation he was so shocked by an electric battery that it has resulted in permanent disability.

**LONDON (CONN.) DENTAL SOCIETY** at its annual meeting May 1, 1900, elected the following officers: Pres., F. N. Harvey; V. P., J. A. Bentley; Sec'y, C. Brown. The members voted to close their offices on Wednesday afternoons during the summer.

**DIED UNDER GAS.**—A woman at Cleveland, O., while under the influence of nitrous oxid gas given for extraction of teeth, died May 8, 1900. It is thought that she may have had heart disease. Another woman in Indiana died from the same cause April 25, 1900.

**PILLS FOR UNCLE.**—Druggist: "Pills, my dear?"

Little Girl: "Yes, please, sir."

Druggist: "Anti-bilious?"

Little Girl: "No, Uncle is.—*Experience.*"

**DENTISTS TO BE KEPT BUSY.**—The government in Schleswig-Holstein, Hamburg, has ordered that the children be instructed in school as to the means to be used for the preservation of their teeth, since the dentists of that province have found that only five per cent have sound teeth.

**SIXTH DISTRICT DENTAL SOCIETY (N. Y.)** at its thirty-second annual meeting, May 2, 1900, elected the following officers: Pres., M. O. Landon; V. P., F. M. Willis; Sec'y, F. W. McCall; Treas., H. D. Whitmarsh; Censor, E. D. Downs; Delegates to state society, E. B. Joachim, E. D. Downs.

**SUSQUEHANNA (Pa.) DENTAL SOCIETY** at its meeting May 2, 1900, elected the following officers: Pres., R. H. Stratton; V. P., B. M. Crary; Rec. Sec'y, T. W. Thomas; Cor. Sec'y, Nellie S. Keiser; Ass't Sec'y, Nellie Carle; Treas., W. H. Hertz; Ex. Com., C. C. Walker, Geo. W. Klump, D. B. Williams.

**FORGOT BILLS WITH PAINS.**—"Yes," said the benevolent man, "I thank heaven for my happy disposition. I am satisfied with what the day brings forth and quickly forget the pain and trouble that have passed."

"Ah," replied the dentist, "that explains your overlooking my little bill."

**TINCTURE OF IODIN STAINS**—To remove the stains of tincture of iodine from clothing, towels or napkins, immerse the stained part in sweet milk and let it remain a short time; after which rinse with clear water. By this process every trace of iodine can be removed.—*T. L. Hale.*

**CATHARTIC.**—The elopement some time ago of the Princess Chimay with the gypsy who bore the name of Janos is now followed by the announcement of the forthcoming wedding of the Princess Janos to Count Hunyadi. This conjunction of names is a loose enough combination to move the bowels of compassion.—*Med. Age.*

**IN A DILEMMA.**—Now that the dental associations of three states have passed resolutions strongly indorsing the Protective Association and the editor of the *DIGEST*, the Trust editors who have been attacking us are like the bull that was caught in the fence—"They don't know whether to hook in front or kick behind."

**HARRIS DENTAL ASSOCIATION of Lancaster, Pa.,** at its annual meeting May 3, 1900, elected the following officers: Pres., W. H. Lowell; V. P., D. S. Smith; Sec'y, A. W. Rogers; Treas., W. H. Trout; Ex. Com., I. Heistand, B. F. Witmer, C. S. Myers; Delegates to state society, C. S. Myers, H. D. Knight, F. A. Zell, O. G. Longenecker.

**GROWING.**—There were only five large cities in America in 1800. Philadelphia with 66,000 was the largest, the seat of government and the center of wealth and culture. New York was next with 60,000. Baltimore was third with 26,500; Boston fourth with 25,000, and Charleston fifth with 19,000 people.—*May Ladies' Home Journal.*

**IRISH VIEW OF DENTISTRY IN THE ARMY.**—(*Northwestern Lancet*). Two Irish volunteers were being examined prior to enlistment in the British army in Africa. They were refused on the ground of having bad teeth, whereupon one of them said, "he thought he was going to war to shoot Boers, but he didn't know he had to eat them."

**RHINITIS DUE TO TOOTH IN NASAL CAVITY.**—Dupuy reports a case of purulent rhinitis, the source of which was finally discovered to be a carious tooth growing in the nasal cavity. The only case in literature which he has found similar to this was that of Tyler, which was a supernumerary tooth, while in this case it was a misplaced one.—*Jour. A. M. A.*

**COCAIN PARALYZES PATIENT.**—A laborer at Sloatsburg, N. Y., while suffering from extreme toothache recently went to a dentist for extraction. Cocain was used and the tooth taken out. The patient was then stricken with paralysis, becoming perfectly helpless. The limbs are still paralyzed, but the physicians believe he will fully recover in a few days.

**STERILIZING PARTIALLY DISORGANIZED DENTIN IN DECIDUOUS TEETH.**—After securing immunity from invasion of moisture, sterilize with wood creosote, carbolic acid or a eugenol solution of iodoform—preferably the latter. Apply a bit of asbestos paper saturated with the sterilizing solution, and over this an oxysulphate filling.—*L. L. Dunbar, Pacific Dent. Gaz.*

**WHEN USING PLASTER PARIS** dressing the hands of the operator and assistants are very easily cleansed of the plaster by using a little handful of sugar, moistening it with water, and thoroughly rubbing same into the plaster on the hands. This will disorganize the plaster, and is one of the best remedies for cleansing after using plaster paris.—*Eclectic Med. Jour.*

**MECHANICAL ROOT-CANAL CLEANSING.**—Apply rubber-dam; drill used only to open mouth of canals. Soak up liquid contents of canal; flood with 20 vol. solution hydrogen peroxid, and gently rake upward with bristle, avoiding piston action. Bubbles of gas form and bring debris to surface. Dry out and repeat until gas ceases to come away.—*John Ackery, Dental Record.*

**PENNSYLVANIA COLLEGE OF DENTAL SURGERY** held its forty-fourth annual commencement May 2, 1900, and conferred degrees on one hundred and twenty-five graduates, the largest senior class in the history of the institution. The Alumni Association of the above college held its annual dinner April 30, 1900 C. N. Peirce presided, and W. F. Litch and W. H. Trueman responded to toasts.

**EIGHTH DISTRICT DENTAL SOCIETY (N. Y.)** at its thirty-second annual meeting, April, 1900, elected the following officers for the ensuing year: Pres., J. W. Beach; V. P., M. O. Cooley; Sec'y, H. MacDougall; Cor. Sec'y, G. W. Pringle; Treas., L. Meisburger; Librarian, S. A. Freeman; Board of Censors, C. S. Butler, H. S. Boswell, H. A. Barrows, B. Rathbun, H. J. Burkhart.

**EASTERN COLLEGE OF PAINLESS DENTISTRY.**—This institution, to which we referred on page 318 of the April DIGEST, has been granted a charter by the state of Delaware, and has opened up in Allegheny. Delaware seems to be going New Jersey one better in the matter of open corporation laws. Under the charter granted there is absolutely no limit to the business powers of the "college."

**MAGNETIC HEALER IN TROUBLE.**—S. A. Weltmer, President, and J. E. Kelly, Secretary, of the American School of Magnetic Healing at Nevada,



Mo., were brought into the U. S. District Court of Missouri on May 7, to answer a charge of using the mails for the purpose of fraud. The last Federal Grand Jury of Kansas City found an indictment against the officials of the school. Let the good work go on.

**NEW YORK DENTAL RECORDER.**—The issues of this publication from October, 1847, to September, 1850, inclusive, have been presented to the Hartford, Conn., Dental Society by Wm. P. Church of Providence, R. I. The work was edited by C. C. Allen. The April, 1849, issue contains the congressional report on Etherization, and the editor most emphatically gives the honor of discovery to Dr. Horace Wells.

**CENSUS AND PEOPLE AWAY FROM HOME DURING JUNE.**—So that each section of the country may be properly represented, the Census Office requests that in all cases of contemplated absence the head of the family will communicate with the supervisor of the district in which he lives. He is also requested to leave with some responsible neighbor information in writing regarding his answers to questions which are to be asked.

**RARE FORM OF COCAIN INTOXICATION.**—Vibert. (*Bul. Med., Paris.*) A tampon moistened with a solution of cocain was placed by a dentist in a right upper molar, in a young man of 20. In about twenty-nine hours the right hand became paralyzed, and aphasia developed, with a few hallucinations. The lower members were not affected. The aphasia subsided in three days and the hemiplegia in eight, but the hand was stiff for a month. —*Jour. A. M. A.*

**STAYING QUALITIES.**—A horse which is successful as a racer usually possesses good "staying qualities," that is, the ability to stick it out till the end, no matter how long it may be. This quality is what counts in a merchant; he must have the faculty of staying with a good thing till he makes other people see and realize that it is good. To advertise intermittently is unsatisfactory for the merchant as it would be for the race horse to "break" occasionally on the course.—*Stoves and Hardware Reporter.*

**ELECTRIC TREATMENT OF NEURALGIA.**—Velasco describes (*Revista de Med. y Cir. of Havana*) several cases of severe neuralgia of the lower jaw, etc., cured in a few sances of galvanization with the positive pole applied to the painful region. In one case the pain was so severe that speaking and mastication were both impossible, swallowing very painful, the escape of saliva from the open mouth continuous. One treatment produced a great improvement and cure was complete in three months.—*Jour. A. M. A.*

**ARMY DENTAL BILL.**—Under date of April 27, 1900, Dr. Williams Donnally of Washington wrote that the bill providing for dental surgeons in the army was in danger of failing in both houses because opposition arose from unexpected quarters, and also because the senators who were expected to support the bill failed to do so. All members of the profession were urged to write their senators and congressmen and show the necessity of having the bill passed. We presume it is not yet too late for this action to be taken by any dentists who have not already done so.

**QUAINT METHOD OF PUNISHING DRUNKENNESS.**—According to the *Jour. de med. de Paris*, which cites the *Imparcial* of Madrid, the authorities of the municipality of Seville have put in force an ordinance for shaving the beard and scalp of drunkards appearing in a state of inebriety in the public streets. The drunkards can at least console themselves with the reflection that one such punishment will provide them with a certain period of immunity, during which they can continue to get drunk with impunity. We presume the comedy has been enacted for the benefit of the "Barber of Seville."—*N. Y. Med. Jour.*

**WOUNDING OF THE FACIAL NERVE.**—Biehl (*Med. Press and Cir.*) showed a young man, aged twenty-two, who received a stab from a knife on the left ear, wounding the facial nerve and producing paralysis of motion in the movements of the face on the same side. In addition to this there was jerking of the left angle of the mouth, with loss of sensibility and vasomotor disturbance, which confirm some of the experiments conducted in animals. In chewing, the left side of the face became bathed in perspiration, extending to the nose and lower jaw, while the right side was perfectly dry. In taking fluid food, or when amyl nitrite and pilocarpin were injected, this phenomenon was absent.

**RELATIONS EXISTING BETWEEN THE NOCTURNAL ENURESIS OF CHILDREN AND ADENOID VEGETATIONS OF THE NASOPHARYNX.**—M. Groenbech (*Sem. med.*) found on review of the researches carried on by him since 1895 that in 9.1 per cent of cases of adenoid vegetation there existed clearly a relation between these tumors and incontinence of urine. The same journal calls attention to Dr. Huber's similar investigations, who found the conditions ordinarily present in nervous children, the issue of neurotic families, who presented a dryness of the mouth and lips, extreme thirst, polydipsia, polyuria and incontinence, both diurnal and nocturnal. They were, moreover, anemic, apathetic, and suffered from headaches, palpitation and often from night terrors. The urinary examination gave constantly negative results.—*N. Y. Med. Jour.*

**FORMULA FOR MAKING EDITORS** runs as follows: "We look into the cradle and behold a male child. At the age of ten he is making more noise with fewer buttons on his pants than any boy in his set; at fifteen he is a devil in a print shop, and acts it pretty well at times on the outside; at twenty-five he is publishing a country newspaper and taking in all manner of roots, barks and herbs in exchange for subscriptions, and he is at the head of every enterprise for the benefit of the village; at thirty-five he is an old and hungry-looking man, with holes in his pockets and the seat of his pants, and has a bald head. At fifty he is a corpse in a pine box, and his assets are two cases of long primer, a "G. Wash." hand-press, and five hundred delinquent subscribers, all of whom line up and march past his coffin and say he was a public-spirited fellow but he couldn't save anything."—*Ec.*

**SIMPLE WATER TEST.**—Into a ground glass, stoppered, perfectly clean bottle put five ounces of the water to be tested; add ten grains of pure, granulated white sugar. Cork tight and set in a window exposed freely to light,

but not to direct rays of the sun. Do not disturb the bottle and keep the temperature as near 70 degrees F. as possible. If the water contains organic matter, within forty-eight hours an abundance of whitish specks will be seen floating about, and the more organic matter the more specks. In a week or ten days, if the water is very bad, the odor of rancid butter will be noticed on removing the stopper. The little specks will settle to the bottom, where they appear as white, flocculent masses. Such water should not be used for potable purposes.—*Iowa Health Bulletin*.

**APOMORPHIN AS A HYPNOTIC.**—The hypnotic effects of apomorphin are considered by Douglas, who calls attention to the contradictory statement in Potter's *Materia Medica* as evidence of how the profession has overlooked the most valuable property of the drug; 1-80 gr. hypodermically is the average hypnotic dose, though it varies somewhat according to susceptibility. In many cases still smaller doses will do. Under ordinary circumstances it should be administered when the patient is ready for bed; if it is taken before he may go to sleep while undressing. In delirium this is not necessary. The direct hypnotic action apparently lasts from one to two hours, but often starts the patient to a good night's sleep. There is no possibility of the drug habit being formed, as the drug becomes a vigorous emetic if the dose is increased to 1-10 grain.—*Jour. A. M. A.*

**SUPRARENAL EXTRACT IN NASAL SURGERY.**—Whitehead (*Lancet*). A watery extract of the dried gland, in the strength of ten grains to the dram, with the addition of twelve grains of hydrochlorate of cocain after filtration, was recommended. The value of this extract for diagnostic purposes was pointed out, the extreme shrinkage in the vascular erectile tissue of the nose resulting after the local application facilitating examination. In operative work the advantages were threefold; first, the greater room afforded by reason of the ischemia; second, the diminished loss of blood; and third, the freedom of the field of operation from hemorrhage. Cases of partial and complete resection of the turbinate bones and removal of polypi and septal spurs were mentioned, and it was noted that there was no severe reaction, excessive postoperative hemorrhage, or delay in the process of repair.

**NO COW'S MILK IN JAPAN.**—In regard to the absence of cow's milk from Japan and its beneficial consequences Dr. A. S. Ashmead says: "One of the most striking features of that most curious of countries, Japan, is the singular scarcity of domestic animals. Horses and cattle are seen only in cities and on the road as pack animals. The cow in Japan is not wanted for her milk. Being an animal product, milk falls under the general condemnation which excludes everything that has pertained to a living body from the alimentation of man. Thus it happens that as Japan may not use cow's milk the Japanese mothers are compelled by stress of circumstances to suckle their babies themselves. Artificial lactation is altogether unknown. The children are suckled until their sixth year. The great reward which Japan reaps from this mysterious care of motherhood is the absence of rachitism. All observers have referred to the fact, and to the absence of rachitic pelvises. I think I am not wrong in saying that the chief and central

source of these great sanitary blessings is the absence of cow's milk.—*Medical Record*.

**SENSATION IN TRANSPLANTED SKIN-FLAPS**—Stransky (*Wein. Klin. Woch.*) draws the following conclusions from his investigations on this subject: (1) The sensation of pain is to be separated from tactile sensation and from the sensation of temperature. (2) Sensation in transplanted skin flaps begins at the margin, the tactile being first distinguishable, and the sensation for pain and temperature developing later. (3) With large skin flaps certain areas may remain permanently or for a long time more or less anesthetic, which fact probably depends on a varying nutrition of different parts of the graft during the process of healing. (4) The specific mechanism of sensation is probably transferred ready-made with the flap, and the nerve-end organs (Meissner's and Merkel's tactile bodies) in the graft join the nerves which penetrate into it from the underlying tissue, and continue their former function. This applies more especially to tactile sensation, which nearly always corresponds to the conditions obtaining in the part from which the flap was taken, and not at all to those obtaining in the part to which it is transferred. This rule could not be distinguished clearly in the case of the sensation of pain.

**PERMANGANATE OF POTASSIUM AS AN ANTIDOTE.**—The powerful oxidizing properties of permanganate of potassium have rendered it valuable as an antiseptic and disinfectant, but its properties as an antidote for various poisons are not so generally known. It has been prescribed with success by Bokai and other physicians in the case of phosphorus, which it transforms into orthophosphoric acid. It has been used by Autall for oxalic and hydrocyanic acids and their salts as well as for strychnin and other vegetable alkaloids. Pyle Koemer has employed it in the case of poisoning by opium, and Lacerda for serpent bites and those of venomous insects, spiders, etc. Several years ago the physician Hugoneng showed its action against atropin, aconitin, caffeine, cocainin, etc. In a recent work an Italian physician, Paratore, has remarked its effect upon the vegetable alkaloids such as nicotin and aconitin and also upon the vegetable poison curare. He has studied its action in cases of poisoning by strychnin, comparing it with the usual antidote such as tannin and iodine. As a result of his researches he finds that the permanganate is superior to others, whether employed in direct injection or in cleansing of the stomach.—*Scientific American*.

**SECTION III, NATIONAL DENTAL ASSOCIATION.**—At the last meeting of the N. D. A. it was decided by Section III to make the work of this section a feature of the meeting. To this end it has been arranged to hold the meetings of this section at such time as will not interfere with the general sessions. All papers upon the subjects embraced in this section will be read in these meetings, excepting two or three which from their general interest have been selected by the committee for presentation to the general body. A suitable room will be provided, and the program for each meeting duly announced. Some good papers are promised.

It was further decided to hold clinics. These will comprise operations

upon patients and demonstrations upon casts, models, etc. It is desired that everyone who has anything new, original and helpful will bring or send his appliances, models and illustrations. While new appliances may be shown subject to the provisions of the constitution, nothing can be offered for sale. Suitable provision will be made for the carrying out of these clinics.

Let everyone interested in this section who has anything to offer communicate at once with

THOS. E. WEEKS, Chairman, Dayton Bld'g, Minneapolis; JNO. J. HART, Secretary, 118 West 55th St., N. Y.; or THOS. P. HINMAN, Chairman Clinic Com., Atlanta, Ga.

### DEATH OF DR. G. H. CUSHING.

Just at time of going to press we learn that Dr. George H. Cushing died at noon May 25, at Los Angeles, Cal.. He was 72 years old and had practiced in Chicago from 1857 to 1898. A fuller notice will appear next month.

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# The Dental Digest.

Vol. VI.

CHICAGO, JUNE, 1900.

No. 6.

## Original Contributions.

### WHAT WILL THE POLICY BE ?

BY THEODORE MENGES, D.D.S., CHICAGO.

That grave duties and graver responsibilities are now resting upon the shoulders of the National Association of Dental Faculties no observing man can doubt.

The dental school is a necessity. It is part and parcel of our profession. As is the college, so largely will the profession be. It is to our schools that we must look for much of the inspiration that will urge forward and upward those who follow us. It is in these institutions that the embryo dentist must lay well that foundation which will enable him in future years to build durably and handsomely.

Are the schools properly preparing their pupils for the exacting duties of the intelligent dentist? That they are giving excellent discipline in much of the mechanics necessary to successfully perform certain operations, cannot be doubted. That many students are graduated who are sorely lame in the mastery of many of the mechanical principles involved in ordinary dental operations, is equally true. That the schools as a whole are sadly lacking in producing graduates who are mentally equipped to successfully grapple with the conditions which confront them in every-day practice, no well informed college man will deny. That many students enter annually upon a college course in dentistry, who are wholly unfit to enter upon the study and mastery of any profession, is a self-evident fact.

If the foregoing propositions be true, then is it indeed time that an earnest reform be inaugurated. The time is not so far in the past when the demand for the services of the dentist was greater than the supply. This soon led to an enormous influx into the ranks of the profession. The examining boards were besieged by applicants for examination, with no other preparation than having

spent from six months to three years in the office of some practicing dentist, who had himself entered the profession through the same channel. Dental schools multiplied rapidly and each year matriculated increasing numbers. This condition has continued until the present day, and it is now difficult to find a town of eight hundred inhabitants without a resident practitioner.

The great demand for the increase in the number of dentists has been fully met. New locations free from competition by the recent graduate cannot be found. The new-comer must now enter a competitive field and match his skill with an older and more experienced practitioner already on the ground. This produces a vast change in conditions, and unless our colleges recognize this fact and meet it with vigor and intelligence, we must expect to see our profession and calling remain stationary and fail to join the general advance made in every other avenue of life.

It now becomes necessary that our dental schools be educational centers. They must do more than guide the student in some of the mechanical principles involved in dental operations and make a pretense at scientific attainments. A course extending over four years is a necessity. Properly equipped Chemical, Histological, Bacteriological and Physical laboratories must be installed. Thorough courses of instruction must be given in these departments. In the Chemical, Histological, Bacteriological, Physiological, Physical—in all of these laboratories a master must be employed, and students must be thoroughly and systematically taught and educated therein. They must be so taught in these fields that they can enter critically and scientifically upon the investigation of any condition requiring the aid of the test tube, the microscope or the balance. The Prosthetic Laboratory and Clinic Rooms must be under the constant supervision of able superintendents, assisted by competent demonstrators.

Well selected libraries and museums must be installed and students encouraged to make liberal use of them. Under such training and from such a course of instruction the graduate can enter the competitive field and succeed. He will be interested in the dental literature of the day, will contribute to our journals, discover new facts, and aid the profession to enter upon a loftier and better career.

Will the dental colleges meet these new requirements? There are already forty-eight recognized colleges having membership in

the National Association of Dental Faculties. It is needless to say that not more than one-third of this number could survive if required to take up thorough work and maintain a strictly educational institution. Six more schools are to be balloted upon for membership at the coming meeting in July at Old Point Comfort. We are informed that six or eight additional new schools will file applications for membership at the same meeting. Presumably good fellowship will prevail and all these new candidates for national honors will be admitted to membership.

If the new schools are prepared to give a proper training to the prospective students they should be gladly welcomed into the national organization, but if any or all of them are less able or more poorly equipped to give a thorough course of instruction than the best (which though the best are yet deficient) of those now in the Association, it would be rank folly to admit them to membership. There are far too many now of the lower grade schools and too few of the better class. Instead of increasing the number of recognized schools, an earnest and vigorous weeding-out process should be instituted. Those schools that find it impossible, from lack of funds and able teachers, to properly equip and man an educational institution should close their doors. The meagre equipment, facilities and teaching force offered students to acquire a knowledge of the art and science of dentistry in many of our now recognized schools makes one blush to realize that such excuses should be recognized by a great national organization.

The question naturally arises, do our better schools, for we must believe that we have worthy dental institutions in this country, really know how ineffective and absolutely inadequate many of our so-called recognized colleges are? If so, why should they consent to lend their aid and powerful influence to perpetuate such conditions? This is what they do by uniting their forces in one great national organization. A very meager advance has this great national organization made. True, it has made some, but not such as was expected.

The dental profession has in the past reposed great confidence in the Faculties' Association. It has granted to this organization, wholly voluntary and without legal authority, greater power than that possessed by any other voluntary organization on earth. Has this power been used wisely by this N. A. D. F.? The medical



school men, with not one-tenth the central organization and committed power possessed by the dental school men, have made by far greater and more substantial advancement. Their requirements for entrance are much higher than the requirements prescribed by the Faculties' Association. Their course now almost invariably covers a period of four years, the majority requiring eight months to each course. Yet we need more time to properly prepare a young man for the profession of dentistry than for the profession of medicine. These comparisons are made in sorrow, and in the earnest hope that our college men may awaken and arise to a realization of the situation and reclaim the confidence of the profession.

The question arises: School men, what will your policy be? Will you continue to permit mere makeshifts to retain membership in your national organization? Will you stand still, or will you advance? Will you continue your policy of backing up and recommending national recognition for schools prepared to offer simply meager mechanical discipline to students, with practically none of the great essentials necessary to impart sound scientific training? Will you continue to admit schools when they have simply come up to your lowest levels, instead of requiring all new comers to be equal to your best grade of schools? Will you continue a three years' course of instruction, when every educator among you who is worthy to be called an educator knows full well that a four years' course is necessary to prepare a student to intelligently manage an office practice? Will you continue to admit students mentally unfit to enter upon the study of any profession, which you do by requiring only one year of a high school course, when you all know that the degree of mental training received in completing a high school course of study is a necessity to enter successfully upon a proper course of dental study? Again we ask, what will your policy be?

Will the stronger schools not only protect but multiply the weaker ones? Remember there is about to be an accounting, not in the dim and distant future, but the day is practically at hand. The hope of the profession is that you will, by vigorous and energetic action at this time, redeem the past and regain the confidence which is fast slipping away from you. The profession has a just right to have a voice in the general policy of its educational institutions, especially so since the schools have joined in a great national organ-

ization for mutual benefit and protection. The National Association of Dental Faculties has appointed a Law Committee to threaten and prosecute any state board that refuses to recognize the diplomas of any of its members. It has not appointed an Investigating Committee to see that all of its members are doing good work. Will this great organization continue to protect weak, lax schools in their weakness and laxness, and will it continue to add to the number of that sort of schools already admitted. School men, the eyes of the profession are upon you ! What will your policy be ?

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## PRESERVATION AND SURGICAL EXTRACTION OF ABNORMAL INFERIOR THIRD MOLARS.

BY D. HURLBUT ALLIS, D.D.S., SPRINGFIELD, MASS. READ BEFORE THE  
CONNECTICUT STATE DENTAL ASSOCIATION, MAY 15, 1900.

Eruption of the third molar is the most uncertain of the entire thirty-two teeth. In the first place the time of eruption is varied, the tables giving it a wide range from seventeen to forty-five years of age, but the writer has on several occasions seen it appear at fifteen years and once at nearly sixty. A great many of them never come at all, often to the relief of both patient and dentist.

Only about fifty per cent of the third molars are found in their normal position, strong and of service to the patient at the age of twenty-five, many becoming badly decayed before eruption has taken place. The location of these so far back in the mouth, and the gum tissue which often overhangs the slowly erupting tooth, render it almost impossible for the patient to reach every part of the tooth in cleaning, thereby predisposing them as excellent breeding-ground for the bacteria which soon produce decay.

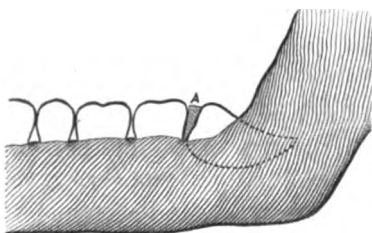
I will simply mention the superior third molar as nearly always coming normal, its only variation being that of growing at right angles to the jaw outward and into the cheek, in which case it is usually easily removed by the forceps and operating from the side.

The same outward-growing tooth in the inferior jaw is more difficult to extract, as the tooth itself is larger and more firmly fixed and the jawbone narrower and more likely to fracture. The removal of these outward-growing teeth and the normal ones which require a backward lifting pressure, are generally accomplished by the cutting forcep, modeled from the pattern of Dr. Physick of Phil-

adelphia. It is a dangerous forcep in the hands of a novice, but powerful and useful when experience is back of it.

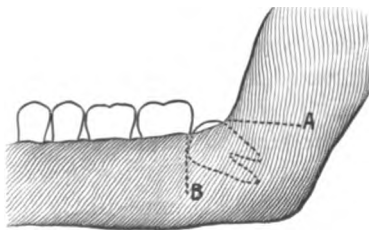
The abnormal condition I wish to illustrate is one we all have seen, and as dental surgeons must meet and render aid becoming our profession—the inferior third molar growing forward from the ramus of the jaw, presenting the articulating surface against the distal face or root of the second molar.

The first thing I like to do is to take an X-Ray photograph of the jaw, which gives something definite for a plan to work upon. Next I classify them into one of two classes: First, teeth which can be righted and preserved for future service, as illustrated in chart No. 1. In three years I have turned six teeth from this position to



an erect and serviceable place, simply by keeping the parts perfectly dry with absorbent cotton rolls and packing a filling or wedge of red base-plate gutta-percha (A) solid between the two teeth. This filling keeps the tooth from decaying and also acts like a wedge, its tendency to bulge turns the tooth backward and upward, if the upper tooth does not interfere and the roots permit. This filling should be changed every four to six months.

Second class. Chart No. 2 illustrates a drawing from an X-Ray photograph of the jaw of a lady about thirty years of age, very



stout and plethoric. She came after suffering nearly two weeks with neuralgia. The distal buccal cusp was just visible above the

gum, yet it had been in that position so long that it had decayed badly, and passing cotton on a broach between the teeth caused great pain, showing an exposure of the pulp. I gave the patient ether, and with a lance cut the gum from A to B, following the top of jaw to exposed cusp, then from second molar cervical edge to B. The gum was next dissected back and away from the bone and held out of the way. The largest round bur, No. 11, was selected (I have had some special large ones made, Nos. 14 and 15) and a large fissure drill was also used. With the rapid and steady power of the electric engine the burring away of the ridge and buccal surface or septum of the jaw covering the tooth is generally done very quickly. Care should be taken not to interfere with the inferior maxillary nerve and blood-vessels. The tooth was then rolled over from the inside with an elevator, and pain left the parts immediately after extraction. Aseptic treatment was followed up very closely for a week, when the patient was dismissed. Aseptic instruments and surroundings as far as possible, followed by aseptic treatment, are the foundation of success in these operations. The value of such a procedure must be judged by the saving of the second molar, the complication arising, and the time consumed.

### EDUCATIONAL WORK.

BY J. D. MOODY, D.D.S., LOS ANGELES, CAL. READ BEFORE THE SOUTHERN CALIFORNIA DENTAL ASSOCIATION, AT LOS ANGELES, OCT. 3-4, 1899.

I believe that, with few exceptions, on leaving college the graduate drops all study and even any serious reading. For obvious reasons this is true of the dental more than of any other profession. So long as this is a fact we cannot truly claim to be a learned profession, nor call ourselves doctors. We have been making claim to this title, and in proof of it have shown our excellent and complete college curriculum, our diplomas, and the splendid work of some of our scientific men, and have diligently made use of the said title. As general intelligence increases the public is becoming more exacting and justly requires that we should demonstrate our right to be called a learned profession.

The cursory reading of a new book now and then, or glancing over the new journals on their monthly appearance, does not constitute study in the sense in which educated men use that term. There are two kinds of study: First, that done by the undergraduate

while preparing for his life work, the mere storing of the mind with facts and rules which are later to be applied to actual practice. Second, taking these same facts and rules and reasoning out the philosophy of them, deducing new facts and rules; in short, making science.

Real study is the putting of two and two together and then reasoning out why the result is four. It is empiricism to simply apply the accepted result as a basis for one's work, and yet we are doing just this thing every day of our lives, living off the vital energy of other minds without ever a thought of the responsibility which our assumed position entails upon ourselves. We shall never make the proper advance as a profession until we change our methods. For want of this the rank and file are missing the advantages pertaining to their high calling, and are in danger of degenerating into mere money-making machines. Our whole lives should be a constant education.

Why do we not do more and better studying? Primarily because of the lack of trained habits, but with proper effort this can be overcome. While in college the student is compelled to read, study and think in company with others. There is a stimulus in this associative work that is wanting in the private effort, and unfortunately there are but few of us who have the trained habit of study, or the determined will to pursue any line of research very far by ourselves.

I believe that with a persistent and intelligent determination to improve our present circumstances we have in our dental societies the means for taking a great step forward in this matter. Let me give some hints along this line: Suppose we sometimes vary our program, and instead of having four or five papers on that number of different topics, by as many men, that we arrange for several persons to work on some one line for months, and then at a stated meeting bring to us the fruit of their labors. This will make six men study and the impulse gained by them will not be lost. The example of these six will to a certain extent influence others to like work. Systematically and wisely pursued this plan will revolutionize any society.

Again, let our society appoint a number of men to take up some study, say, amalgam, bacteriology, histology, manufacture of artificial teeth, filling root-canals, or any other topic related to our

work. Have them make as exhaustive a study from books or experience as possible in, say, six months. Let them meet once in a while to compare notes, then at the end of the time set give us their individual judgment formed from the research. This would have an educational value of no mean import.

For another occasion assign to a certain number a book to review, or some article in a journal to criticise. Require in either case as thorough work as the dentists are capable of, and when through let them meet, compare notes and afterwards give us the results of such study.

Again, on some evening have each one present tell what journals he takes, and give the reasons for his selection, or have some one who is competent give a careful estimate of the different journals as a guide for dentists in subscribing. At another meeting have the members tell what dental books they have read during the year, and why and how they read them, and what help, if any, they derived from such reading. Such meetings could often be repeated with profit, providing they are always well arranged for beforehand.

We all use rubber; some prefer one make, some another. Can we give an intelligent, accurate, scientific reason for our choice? Set a dozen men to making tests, not guess-work, but real tests, and afterwards give us the results and the methods used. We read many practical hints and try them, after a fashion, pass our judgment on this inaccurate evidence, and others blindly follow our opinions. When a man makes a statement in a journal, giving his process upon which it is founded, we should not positively accept or condemn until after we have made accurate trial of it.

One of the most potent factors for good in this direction might be a society formed especially for study and experiment, which could be composed of two or a hundred. It would not necessarily have as members only the profound student or the strictly scientific man. Just such men as now make up our society could profitably enter upon such work and carry it to a successful conclusion. Grade the task according to the ability of the members, but aim to raise the standard as rapidly as possible.

Let me give you an example. Our discussion yesterday on the electric root-drier missed the real point in the position taken by the essayist. So far as appeared, Dr. Moore's experiments stood alone, and these were shorn of much of their value because they had not

been checked by comparison with others. Suppose six men, indiscriminately picked from our society, had been assigned to study up and report upon root-drying. Under the lead of their chairman, who should be trained in study, they would have a preliminary meeting to arrange the line of work and its details. Then from time to time they should be called together to compare notes and to check any tendency to wander into irrelevant paths. At the end of six months we would have six men who would say—not "I think," but "I know." Men don't like work naturally, but when shown some pleasure or good in it they will take hold with avidity.

You recognize in these hints given that the principle upon which success will depend is *associative* work, and this intelligently and persistently pursued will prove to be in the highest sense educational work. Back of all this, however, lies a deeper and further-reaching principle, namely, that mental power when used develops more power. Associative work is but a means to this end.

And now I close with an appropriate admonition by one of the world's master thinkers: "Finally, brethren, whatsoever things are true, whatsoever things are honest, whatsoever things are just, whatsoever things are pure, whatsoever things are lovely, whatsoever things are of good report, if there be any virtue, and if there be any praise, *think on these things.*"

Discussion. *Dr. M. E. Jordan, Los Angeles:* Dr. Moody's idea of associate work is excellent, for we know how necessary some such stimulus is to start us in the right direction.

The essayist's suggestion that societies appoint the men, and not necessarily the most learned ones, is very good. It not infrequently happens that many retiring men, whose voices are seldom heard in the societies, are great readers and deep thinkers. If to them, as well as to the more fluent speakers, were assigned some of the topics indicated, we might have opened to us unexpected mines of great richness.

The title of the paper opens up to me another line of educational work, namely, that of the laity. The perusal of a school physiology and its chapter on "Teeth and Their Care" will edify any dentist. It is not, however, the education of the children only with which we are concerned, but that of the teachers and mothers. If they knew, for instance, that the first permanent molar erupted between the ages of five and a half and seven we should very sel-

dom be called upon to treat or extract these teeth before the child is ten years old. Irregularities would also be rare if those in control only were aware that the early loss of deciduous teeth and the habit of thumb-sucking were largely responsible for the trouble.

### ERYSIPELAS—CASE IN PRACTICE.

BY M. C. SMITH, D.D.S., LYNN, MASS.

The following case was of special interest to me, as I do not remember of having seen anything similar. The patient was a negress, aged about 30, and she presented to have some teeth extracted. On examination I found the right cuspid badly ulcerated, and the probable cause of her trouble. The face was swollen and there was a well-marked facial erysipelas, with the center of the lesion over the cuspid fossa. What was the proper course to pursue under the circumstances—extract those teeth and run the risk of spreading the disease, or wait until the erysipelas had subsided?

**TOPOGRAPHIC RELATIONS OF BRAIN, FRONTAL AND MAXILLARY SINUSES, AND VENOUS SINUSES OF DURA MATER TO WALLS OF SKULL.**—Paul Regnier and Jules Glover: The authors describe their researches in which radiographic methods were employed in the investigations of the anatomy of the skull and face. The points especially studied were the topography of the cerebral convolutions in relation to the venous sinuses of the dura mater and the skull, and the cavities of the cells of the mastoid process and of the facial and cranial bones, and also the interior cavities of the brain. They took the hardened brain freed from pus and placed it back in the skull for the skiagram. They report that in examining a child's head with a fluorescent screen it was sometimes possible to see a clear patch corresponding to the median portion of the brain that exists normally in young infants but its transparency is more apparent in the pathologic state when the ventricle is dilated with fluid. It is easy, by mere examination with the fluorescent screen to verify the transparency and the condition as to emptiness of the frontal and maxillary sinuses, and perhaps even of the mastoid cells, with much more exactness than by making use of the ordinary electric light. Instead of employing a powerful light introduced into the mouth for the illumination of the maxillary sinuses, or applied to the upper and inner margin of the orbit for the illumination of the frontal ones, they recommend recourse to cylindric focus tubes. With this object, and in order to simplify the manipulations, the tube is fixed on a small and light stand made of ebonite, or even of wood, and the observer wears caoutchouc gloves to protect himself against the shocks from the current. The tube can be brought near to, or removed from, the patient's head, until the proper distance is found, without causing any inconvenience or danger. In examination of face all the cavities become visible at the same time.—*Lancet*.



## Digests.

**DENTIGEROUS CYST.** Berger (*La Presse Medicale*, 1899,) operated upon a boy thirteen years old who had been suffering for a year from a cyst which developed to the right of the medial line upon the anterior surface of the upper maxillary bone, pushing forward the cheek and pressing on the palatine vault. The trouble began with a swelling of the cheek, which extended to the furrow, separating the cheek from the ala of the nose and finally quite obliterating this. All the teeth were present, but the incisors were deviated somewhat. On lifting the upper lip a bosselated swelling was found involving the mucous membrane of the gum and exhibiting the dark color of cyst of the jaw. The tumor was fluctuating. Most of the anterior wall of this tumor was removed, allowing its gelatinous liquid to escape. The cavity left did not communicate with the antrum, and contained a supernumerary tooth developed in the inferior wall of the cystic cavity. Cleanliness and drainage accomplished the gradual obliteration of this cavity.

Berger holds that there is no clinical difference between the dentigerous cysts and those which have been variously designated as alveolar, periosteal, etc. The situation of the tumor, its relation to the alveolar border, its extension upward, correspond precisely to the periosteal cysts. All these cysts arise from paradental epithelial debris. Care should be taken in opening these cysts not to break into the maxillary sinus, nor to destroy the thinned palate.

\* \* \*

**BOER PHYSIC.** The *Chemist and Druggist* publishes the following account of the pharmacy of the Boers: "The average Boers are good customers of the chemist because they take a good deal of medicine on account of their internal torpidity. This is due to their movements being slow and the eating of much doughy bread. The Boer is slow to change, and slowest, to say the least, in changing the kind of medicine which he uses. It is the same kind that his father and grandfather have used, and he says it is therefore good enough for him. All the packers of Dutch medicine advertise that their products are manufactured according to the 'original formulas' procured direct from Holland, and caution the people to be careful of what they buy in this way. The Boer does not use patent med-

icines. He begins his treatment by giving a good purge, and if that does not succeed in curing the disease he goes through the entire list of medicines in the 'huis apoteek' or family medicine chest. Most of the drugs in this chest are herbs and native preparations, the medicinal value of all of which being quite questionable. There are what are termed 'traveling chemists' in the land of the Boers, men who go from place to place, engage a room, advertise that they are in town, and proceed to sell their rubbish to the unfortunate Boers who may 'happen in.' These men are charlatans, and at one time an effort was made to prevent them from practicing their quackery, but the attempt fell through through want of support."

\* \* \*

LEECHES AND BEDBUGS AS GERM-CARRIERS. In his experiments, Mühling (*Centralb. für Bakter.*, 1899) used the bacillus of anthrax and proved the existence of an internal infection of anthrax in bedbugs which had fed on the blood of mice likewise affected. Furthermore, a horde of bacteria settled on bugs which had been allowed to wander over the remains of mice infected with anthrax. The infected bugs had present in their intestinal canal virulent anthrax bacilli which finally passed away unchanged in the feces. Mühling does not state that he experimented further with the view of ascertaining whether or not any virulence remained with these bacilli voided in the feces. The bugs, however, were not visibly affected by the bacillus anthracis, which fact the author proves by stating that he kept such a bug alive and under observation for six weeks. The bite of such an infected bedbug upon a mouse was without result. However, if, while sucking at the wound the bug was crushed with a sterile glass rod, and rubbed therewith over the surface of the wound, thereby insuring the freeing of the intestinal contents and simultaneously of the contained anthrax bacilli, there was obtained in every single case as a result the infection of the mouse. The author believes that the bedbug only sucks blood from its victim, and that no germs can escape from it to its host in the process (?). Leeches are very similar to bedbugs in these respects. Thus, they do not succumb to anthrax. Mühling declares that he kept such an infected leech living for three months. On the other hand, however, the anthrax germs, after having been taken up by the leech, die in that animal's intestinal canal after so short a period as a single day. The author did not satisfy himself as to the reason

for this. Mühling concludes that even though it should accidentally happen that the germs attached to the external surface of the leech find their way into the wound, they would be sucked up by the leech in the process of blood-transfer, and therefore that parasite could be used therapeutically without any danger of infecting its host, on both man and animal.—*Med. Rec.*

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**SALIVARY CALCULUS FROM THE SUBMAXILLARY GLAND.** By S. H. Dessau, M.D. A woman, twenty years of age, had complained for three days of pain upon movement of the tongue and jaws and of a swelling underneath the tongue on the left side. On examination I found a lymph node, enlarged, tender and movable, in the left submaxillary region. A portion of the sublingual gland of the same side was also swollen, and there was a decayed molar in the lower jaw on that side. No digital examination of the mouth was made. The patient had had a mild attack of influenza during the previous week and it was thought that some infective process had been lighted up in the root of the decayed tooth.

The following day the inflammatory process had progressed, causing increased enlargement of the sublingual gland, the surface of which was excoriated. There was also increased swelling with tenderness of the submaxillary lymph node and induration of the floor of the mouth. There was a free flow of saliva. The speech was thick and there was inability to open the mouth to any extent. Temperature was 101 degrees F. The condition suggested some slight suspicion of Ludwig's angina.

Suppuration, with spontaneous rupture of the ranula, occurred the same night and a calculus was passed from Wharton's duct. The calculus was eleven-sixteenths of an inch long and two-sixteenths of an inch thick at the central portion, tapering to a rounded point at either end. A fine probe passed five days later showed the duct free from further calculi. It is needless to say the patient promptly recovered from her unpleasant symptoms.—*Medical News.*

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**PERFECT BACKING.** By Dr. D. A. Peoples. Plano, Texas. From the time when I was first taught to "back up" porcelain teeth for the purpose of soldering them to plates and bands, I have longed for some plan by which the fluids of the mouth (and in some cases

I have seen more than fluids) could be excluded from the space between the backing and the porcelain facing. I do not remember having seen anything in our journals or other publications which has even made a pretence of being such a "perfect" backing, the nearest approach to it being the various methods of swaging one that will closely fit the facing. Then, too, I have seen the facings which we placed with such care crush off under some great (?) strain, because of their frailty, thus marring our work and giving us a difficult piece of repair.

To overcome this imperfection and weakness I have devised the following method, which can be readily followed by all of the profession accustomed to metal working who have a porcelain furnace large enough to take in one or more teeth, and who know how to use it. Cut a piece of thirty-six gauge platinum somewhat longer than the tooth to be backed usually calls for. After punching the pin holes, bend back the upper and lower edges of the backing in a *sharp* angle, using the edge of a sharp blade of a pocket knife or any such instrument, at the same time making it assume a slightly convex shape. When in place on the tooth you will observe that it does not go all the way to either the biting or gingival edge. Now fill in with porcelain body between the tooth and backing and bake in your furnace, being careful that none of the porcelain body is left on the outside of the platinum, but that it is filled in solidly between the facing and platinum, giving it a second or even a third baking if necessary.

You now have a tooth backed with platinum which is much thicker at the pins than as ordinarily prepared, incomparably stronger in resisting the strains which so often mar our work (as it does not depend upon the pins alone to keep the facing in place, but all is solidly fused together), and it *absolutely excludes all fluids*. You may add to these points of excellence the freedom of the biting edge from the "line" of gold, which is so often objected to by the esthetic portion of the profession or their patients, and freedom from the danger of melting down the backing in the future solderings, and yet the platinum does not show through and darken the color of the facing.

With this perfectly backed tooth you now proceed, attaching it to plate, or band or bridge, as you desire. Of course you will be careful to not allow the flux to get on the exposed porcelain between the

edge of the backing and the biting edge of the tooth, but will carefully cover with the investing material, else you will be likely to crack it in soldering. If you should wish to grind away any of the gingival edge, it would be better to not grind far enough to remove the "angle" of the platinum backing. Nor is it necessary to have a flat back tooth or facing, as the plain (or a gum, if you want it) rubber one can be used just as readily.—*Items, April, 1900.*

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**HEMORRHAGE.** By Alfred Cocker, L.D.S.I. A gentleman, aged 25, called to have a stump of the upper second molar removed. It was so loose that it could easily have been lifted out with an excavator. It was, however, extracted with a stump forceps and the patient dismissed. About two hours later he returned, as the bleeding had not stopped. Several unsuccessful attempts were made throughout the day to arrest it. Cotton plugs dipped in carbolised resin and then in powdered alum were first tried, then tinct. perchlorid of iron, and afterwards a cork compress on the top of the plug, but all to no purpose. The socket was so shallow that it was impossible to get a plug to hold tightly. I then obtained a model, and as there were two teeth standing on the same side of the mouth, viz., the first bicuspid and the third molar, I made a band for each of them, then softened a piece of base-plate and pressed it well over the model of the bleeding socket (hard-bake or shellac will do equally as well). The bands were then heated and placed into position in the plate, this being fixed in the mouth over a tinct. perchlor. plug. By this means the hemorrhage was quickly arrested. The time occupied from taking the impression to finishing the plate was about twenty minutes. The point I wish to draw attention to in this communication is the use of shellac as a temporary plate in cases of persistent hemorrhage.

The second case is that of a gentleman aged about 40, a sanitary engineer. He called to have a number of teeth extracted, preparatory to being fitted with a partial upper and lower set of teeth. In the upper jaw I cleared out all except the two cuspids and the two second molars, and in the lower jaw all except the left second bicuspid, the four centrals, and the right cuspid. Late in the evening of the same day he was bleeding badly and sent for me. I found him roasting himself before a hot fire, as he was feeling very cold. On examining his mouth I saw the blood was streaming from the socket

of the left lower cuspid. After a time I succeeded in completely arresting it, and heard nothing further of the case till a week later, when he again sent for me, as he had been bleeding profusely for a considerable time. When I got there it was quite evident that the loss of blood was serious, and it was only after making three or four attempts to stop it that I discovered that the cuspid of the upper jaw shut slightly into the socket of the cuspid of the lower jaw. I then determined to make a plate similar to the one in the first case, except that the model was so cut that the edges of the plate when finished would fit so tightly as to make perfectly sure of the bleeding being arrested. When I had fixed it in position after again plugging the cavity the bleeding quickly ceased. The plate was worn for a fortnight. The point of interest in this case is that the recurrence of the bleeding was undoubtedly due to the upper cuspid shutting into socket of lower.—*Jour. Brit. D. A., April, 1900.*

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EUROPHEN IN DENTAL SURGERY; ITS SPECIAL VALUE AS A SUBSTITUTE FOR IODOFORM. By K. J. Schumann, D.D.S., Athens, Tenn. *Europhen in Root Canals.* Apply rubber dam. Clean the canals with suitable broaches, follow with canal drills, wash out the debris thoroughly. After cleaning the canals with instruments, take one or two drops of carbolic acid crystals, pour out upon cement slab, take a few grains of europhen and rub into carbolic acid until you have thick paste. Wrap a smooth, fine broach with a few fibers of absorbent cotton; pass this into the paste of carbolic acid and europhen, introduce it into root canal and by a gentle pumping motion fill the canals full of the paste. After having assured yourself that they are full, light the alcohol lamp and pass a smooth broach through the flame until red hot, introduce it quickly into the canals, and repeat this until you cease to hear the paste "fry." Fill canals to apex with gutta-percha points previously warmed and rolled in europhen. Fill cavity in usual manner. I claim for this method rapidity, thorough asepsis and a sweet smelling canal. Iodoform may be used in the same manner, but the odor is horrible, and it will not work so well. I have tried both. The europhen is in many ways better. In rubbing it into carbolic acid a certain per cent resolves itself into iodine which, with its other chemical constituents, renders it a valuable paste.

Europhen is extremely light, palpable and almost entirely free from obnoxious odor. In external fistula of the cheek, etc., it can be used to a great advantage. I give case of alveolar abscess with complications. Miss M., aged eighteen, presented with aching lower molar so badly broken down that I advised extraction. She refused the operation, leaving office without treatment. Saw nothing of patient for six months, when she again called with abscess of alveoli involving cheek and opening beneath superior maxillary bone, with considerable ulceration and disintegration about point of egress. Extracted roots of molar, washed sinus through cheek with protargol ten per cent, packed external sinus with gauze dusted with europhen. Repeated protargol ten per cent for ten days, dusting external wound with europhen, by which time patient was dismissed cured.

Mr. G., aged twenty-six, abscess of antrum with rhinitis. Treated abscess through second bicuspid by four per cent protargol solution. After a few days symptoms subsided somewhat. Began with europhen, 3 vii.; boroglycerid, 3 j. M. Passed application saturated with above into nose, swabbing the sniderian membrane twice a day. Two weeks under treatment with cure.

Mrs. J., aged nineteen. Twelfth year molar had been extracted, resulting in "dry socket." Syringed with protargol ten per cent, afterwards packed with gauze dusted with europhen. Complete healing of pocket in two weeks.

Mrs. W., aged forty-six. Right upper second bicuspid devitalized. Had been aching for weeks. Patient had been to the dentist who treated her regularly for thirty days with no benefit. She requested an extraction which I declined, so she finally consented to allow me to treat the case. I passed fine broach through roots, clearing away everything I could find. Pumped canals full of europhen and repeated same treatment for two days. Third day filled canals with europhen paste, passed red hot broach through canals, filled roots, painted the gum over the tooth with tr. iodine—tr. aconite rad. ää; filled cavity and have had no further trouble.

Europhen can be readily made into paste with creosote, carbolic acid, eucalyptol, boro-glycerid, etc. In pyorrhea I first remove serumnal calculi with suitable instruments, wash pockets with twenty per cent protargol solution, and pack the pockets full of europhen. Results are immediate. In aphthous stomatitis wash

mouth with protargol ten per cent, and if corners of mouth are involved in ulceration dust with euophen. One great advantage which euophen has over other powder dressings, which is peculiarly adapted to dental surgery, is that if from any cause whatever moisture should enter through the apical foramen, the euophen coming in contact with the moisture immediately gives a pasty solution of iodine which, with its other powerful germicidal elements, makes small the chances for alveolar abscess.—*Items, April, 1900.*

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**THERAPEUTIC USE OF WATER.** By George P. Sprague, M.D. To use water scientifically its physiological action in health and disease must be studied as have those of all others of our standard remedies. Many men throughout the world are now testing, weighing, counting and measuring the results of the use of water in disease. In doing this they are bringing forth new physiologic data which compels us to alter some of our most important preconceived ideas on such matters as the causes of heart-failure, the importance of reflex action, and the manner of heat-regulation. We sometimes lose sight of the fact that the skin (through whose 20 square feet of surface we secure the benefits of hydrotherapy) is really an enormous gland richly endowed with nerves, secreting and excreting organs, and a network of bloodvessels which can contain at one time about 35 per cent of the entire blood supply of the body. The nerves which supply the skin are composed of medulated and nonmedulated fibers, the functions of sensation, secretion and heat-regulation requiring a large supply of nerves from both the sympathetic and cerebrospinal systems. The function of sensation requires a most complex system of nerves of general sense, nerves of tactile sense and the specialized nerves of the latter group for the appreciation of heat and cold. In the words of Baruch, "the cutaneous nerve-endings stand guard, as it were, over most of the functions of the human body; they are constantly exposed to irritation by heat and cold, which they convey to the vasomotor, respiratory and cardiac centers, and to the muscles, in order to arouse in them by reflex action such a degree of enervation as may be required to ward off any damaging influence that might approach from without." When these nerve-endings convey their message to the cardiac center the heart is strengthened and slowed. When they affect the center for respiration, breathing is slowed and deepened.



In securing vasomotor action the skin may be emptied of its blood, or its vessel so relaxed that more than one-third of the total volume of blood may be within it, according to the wish of the physician. The anatomies and physiologies of even ten years ago contain a strangely vague and brief account of the sympathetic nerves, and of reflex action; but we have progressed since then so that we now know that the proper application of water to the skin restores the heart when digitalis and strychnia will not; expands the lungs and increases the chest-measurements when exercise and tonics fail; brings color to the cheeks of the chlorotic girl more rapidly than does ferrous carbonate, and that it will often check the advance of phthisis after drugs and climate have been used in vain. These are broad claims, but they have been amply substantiated, and we know why they are facts. We have been taught that the terminal arteries have no inherent power to change their own calibers, but Prof. Woods Hutchinson defends the claim that the bloodvessels have a rhythmic contraction and expansion of their own, in addition to the contraction caused by action of the vasomotor nerves and the relaxation caused by drugs, heat, etc. The theory certainly seems more reasonable than that all blood-propulsion depends on the heart alone; it also accounts, as no other theory does, for the circulatory phenomena noted in the hydriatric procedures. He gives to this the expressive name of the "skin-heart." Romberg and Paessler, German investigators, found that the failing heart so justly dreaded in febrile conditions is not really changed in its muscular quality, but that the lack of tone in the peripheral vessels due to vasomotor paralysis is the real cause of its weakness. Restore this tone, the heart is better filled and regains its force.

Hare illustrates this by comparing the heart with vasomotor relaxation to a locomotive on a slippery track; the rapidity of its action racks the heart as the revolving wheels do the engine; giving digitalis makes it worse, as does feeding the fire of the engine increase the strain on it. But give the heart the normal vasomotor resistance (put sand on the track), and a slower, stronger action is the result. Bearing in mind that all increase of function is dependent on increased blood-supply, and that increased circulation of blood results from a slow heart beating strongly, in connection with a heightened vascular tension, and we see theoretically, as we find in practice, that the lungs absorb more oxygen, that the kidneys

secrete more urine with an increased percentage of toxic solids, that intestinal peristalsis is increased, that the skin itself becomes more active as the result of hydrotherapy. This briefly covers the more important physiologic factors in the use of water, though many important points must of necessity be left untouched.—*Phila. Med. Jour.*

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**TRICHLORACETIC ACID.** By J. S. Ashbrook, D.D.S. Trichloroacetic acid ( $C_2HCl_3O_2$ ) is prepared by the oxidation of chloral hydrate by means of nitric acid. It consists of colorless, rhombic deliquescent crystals. It belongs to a group of three acids, the other two being the monochloroacetic and the dichloroacetic acids, and the difference in their composition is due to the proportions of chlorine they contain. They have similar properties.

Trichloroacetic acid is employed in dental practice as an escharotic in the treatment of pyorrhea alveolaris, on account of its destructive effect on pus-secreting surfaces of the alveoli of teeth, for which purpose a 10 per cent solution is applied. It is also employed for the removal of vascular tumors of the pulp, and hypertrophy of the margins of the gums and epulis. Dr. Kirk speaks of using this acid in the strong solution of about 90 per cent for the removal of such growths. It has also a solvent effect on calculi upon the roots of teeth, a 10 per cent solution in water being recommended, and has also been employed on the overhanging and resistant gum of third molars. A 1 per cent solution has been successfully employed as a mouth wash for its astringent and stimulating action in inflammations and ulcerations. It is also used in combination with pyrozone in the treatment of alveolar pyorrhea and in such a solution, as well as alone, its effects have been remarkably satisfactory. Trichloroacetic acid may be combined with any suitable alkaline solution, such as soda or magnesia, when it is desirable to limit its action. It has a peculiar power to soften and remove sanguinary deposits, and it acts without injury to the teeth or soft tissues.

Diluted with water to a 3 per cent solution it is an excellent local astringent and stimulant. Dr. Harlan recommends it for removing the overlying gum for third molars, as it destroys the tissue without hemorrhage or subsequent soreness. It is also employed to gain access to roots of abscessed teeth through a fistulous opening, one crystal, followed by more, being placed in the fistula; it is also used for removing hypertrophied gums and gum polypi.

Trochloracetic acid is a stimulant, refrigerant, antiseptic, astringent, alterative and an escharotic. As a stimulant it is most useful in treatment of receding gums; some claim it will cause the gums to recede. This has not been my experience. I know of one case in particular where the gum had receded fully one-eighth of an inch; after two weeks' treatment the gum was almost in its normal position and has remained so for eight months. In treating gum overhanging lower third molars it is most valuable, as you know these cases often cause great trouble, becoming so inflamed that the face is swollen, making mastication difficult. Two or three applications of this acid will in most cases cure this severe condition, the first application giving instant relief. In this case it acts as a refrigerant, antiseptic, astringent and escharotic.

After removing salivary calculus, which collects in such large quantities on the lower anterior teeth, causing them to become very loose in their sockets, one application in most cases will harden the gums and prevent the accumulation of the calculi for a long period. In treating devitalized pulps it is especially useful as an antiseptic, applied on the end of a broach just before filling permanently. In cases where you have a large apical foramen you can readily see its value. In filling cavities, where the gum overhangs the cavity, making it difficult to prepare on account of the bleeding, apply a little acid, and proceed without further trouble. Last, but not least important, is its use in the treatment of a fistula from alveolar abscess. With cotton saturated with the acid carefully placed around a broach you can reach the bottom, and in most cases the fistula disappears after two applications. In all the above cases I use the pure acid in small quantities. In forty-eight hours all trace of its action has gone, except the good results; the mucous membrane peeling off, as it were, and a new layer formed. A number of physicians have informed me that they use it and find it valuable in all the properties I have mentioned.—*Brief, April, 1900.*

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**ALKALINE SALIVA.** By M. H. Fletcher, D.D.S., M.D., Cincinnati. Read before Ohio State Dental Society. Dec. 1899. Miller says, "The saliva of cattle, sheep, dogs, rabbits, etc., is essentially strong in alkaline reaction;" this may account for their perfect digestion, as well as their immunity from decayed teeth. This is not true of mankind, however, and in order to compensate

for the physical defects of civilization, caused by eating prepared foods, the mouth should have conscious and continual attention. One demand seems to be that the saliva be artificially restored to its normal alkalinity. Decay of the teeth may be arrested or at least proceed very slowly when the saliva is normally alkaline; the contrary is held to be true by some, but as stated, it is probably due to the strong alkaline saliva of animals that their teeth do not decay. The exception to this rule is found in domestic animals, or those kept as pets or in confinement and fed upon prepared foods.

Lactic acid is formed in the mouth by the action of bacteria upon all cooked starches, and is thought to be the great cause of decay of the teeth. A small portion of some of the sodium compounds dissolved in the saliva quickly penetrates the irregularities or cavities in the teeth, neutralizing the lactic acid of this ferment, as well as other acids found in the mouth. The promptness with which sweets penetrate cavities in the teeth, producing pain and assisting decay, gives a hint as how to try to arrest this process. The saliva is already in the places where the damage to the teeth is being done, and by utilizing it to dissolve a suitable alkali the seat of trouble is reached at once. Normal saliva is slightly alkaline, but the alkalinity is so weak that few mouths are capable of prompt recovery from an acid condition, neither is the alkalinity usually strong enough to counteract the acids of decay, hence it seems rational to endeavor to supply this deficiency.

The mucus, of which the saliva is partly composed, does not dissolve in water, ether, alcohol, or dilute mineral acids, but dissolves readily in alkaline solutions; hence any attempt to wash the saliva from the cavities in and about the teeth with anything but an alkaline solution is much like trying to remove grease without soap—the undisturbed globules of mucus remaining filled with microorganisms. The foregoing seems to indicate that an alkaline fluid is needed at the portal of the body for protection.

It is an accepted fact that the mouth is constantly inhabited by numerous germs, many of which are disease-producing. Within the short space of an hour the particles of food remaining in the mouth become filled with microbes of many varieties. Saliva freighted with these germs being constantly swallowed may produce fermentation in the stomach, which results in eructations, sour stomach, headache, etc. Clinical experience shows that a small

portion of a suitable alkali allowed to dissolve in the saliva and swallowed will quickly correct the disorder. If the saliva is kept in its normally alkaline state, or in excess of normal, many of the acid-forming, fermentive and putrefactive processes are prevented in the mouth, the saliva being swallowed in this purer state assists digestion instead of interfering with it.

The physiology of the mouth and stomach are so related that a remedy which will arrest putrefaction and fermentation in one organ may do so in the other, and mild alkalies are most accepted for this purpose, some form of soda being oftenest used, that of bicarbonate most frequently. This particular form is objectionable, however, because alkaline carbonates are utilized in producing lactic acid.

Considering the subject from the foregoing standpoint, the writer has for a period of years had it in mind to endeavor to meet these demands with a suitable mouth preparation, and for some months past has been experimenting to this end. The method of procedure was about as follows: First. All things that were considered inefficient or objectionable in existing dentifrices and mouth washes were excluded. The pulverized chalk, seashells, pumicestone, cuttlefish bone, etc., seem always to have been used, and with this idea of polishing the teeth, but this is not what is needed, for their natural surface is the best, anything which polishes also wears; the object then should be to keep them clean, and no more. So far as the mechanical part of a dentifrice goes, if the earthy matters usually employed are coarse enough to readily cleanse the teeth, saw-toothed and other abrasions may follow with their evil results, and if they are so fine as not to produce this effect, little good from their use can follow.

Dr. A. H. Peck's analysis of a number of mouth preparations proved that but one of many had the essential feature for the purpose desired, viz., that of alkalinity. The only soluble alkaline preparations which have been much used for the mouth are those containing soap, but soap merely lubricates each particle of the powder and the bits of food about the teeth, causing the brush to slip easily over instead of removing them. Soap will relieve the mouth of oils and mucus, as it will the skin, but does not remove tartar nor destroy bacteria. Toilet soaps as a rule are not strongly alkaline, therefore cannot neutralize the acids of decay to any great degree, nor can they be relied upon to cleanse or purify sufficiently.

The foregoing facts necessitated a new start, the demands being as follows: First. To find a mechanical cleanser which would not abrade, and that a dentist might conscientiously recommend, and a patient feel free to use without danger of injury. Second. The saliva must be utilized for dissolving an antiseptic and anti-acid, so that the cavities of decay will be penetrated by it, thus arresting caries, and if possible prevent its recurrence by continued use; the acids found in the mouth from any source must also be counteracted. Third. Something must be found which would act on the mucous membrane, for the purpose of keeping it in health or restoring it when it shows signs of disorder, also to be a suitable treatment for lesions of the gums or mucous membrane. Fourth. With all these demands it was necessary to find a combination, the ingredients of which would be agreeable to each other and acceptable to the stomach, for the saliva passes in almost a constant stream to this organ, a fact too little considered in treatment of the mouth.

Giving the results of months of experimenting without many details; the mechanical cleanser and menstruum was first taken up; something softer than the softest ivory must be used, so wood fibre of many kinds was first tried, with the result of making a very efficient dentifrice from cedar, boxwood, sandal-wood and other very fine sawdusts, but each had its own peculiar flavor, many of which were undesirable, some giving up tannic acid, also objectionable, and the woody fibre remained about the teeth and under the tongue with a disagreeable effect.

Finally the raw hard parts of various cereals were taken up with better results, and those of rice and Indian corn selected as being the best; these are to be used in the form of a coarse flour. This material is of itself a most efficient dentifrice, cleaning perfectly without injury. The little blocks from the grains are like so much fine sand or emery in appearance, but are very much softer than the softest enamel or dentin, consequently cannot abrade them, yet they are harder than the particles of food, and of most deposits of tartar, and being usable in so much coarser condition than earthy powders, they are much more efficient, which a trial will prove. The argument has been advanced that this material being starchy would only assist the fermentive process of the mouth. This position is untenable from the fact that starch can not ferment until it is hydrated, and is hydrated quickly only by moist heat or caustic alkali.

As to the *chemical part* of the *question*, many things were considered and from various standpoints. Sodium borate and potassium chlorate were finally decided upon as being the most suited to all the conditions and to each other, they have proved to be clinically what they promised theoretically; the valuable therapeutic properties of both remedies are familiar to all physicians and dentists. In the first place they are only slowly soluble in the saliva and both act as the best of mechanical cleansers before they dissolve. They are both alteratives, tending to restore the mucous membrane when it is abnormal, and each acts as a complement to the other. The *borate* gives a decided alkaline reaction with litmus paper, first it is strong of the soda, changing into a sweetish alkaline taste, which is very agreeable in effect. The meat packers of the United States alone use one thousand tons of borax yearly as an antiseptic. It is used in antiseptic surgery to quite an extent, being free from irritating properties, and is an efficient dressing for wounds, ulcers, abscesses, etc. Dr. Walb found that a five per cent solution of it would keep fibrin perfectly fresh for nineteen days. Its value in medicine grows out of these properties, in addition to its peculiarly detergent, mildly stimulating and alterative action upon the mucous membrane. In ulcerations, diphtheria, and other inflammations of the mouth, crystals of it are allowed to dissolve slowly in the saliva. In solution it is also largely used in skin diseases. The internal dose is from thirty to forty grains. *Potassium chlorate* and its medical properties are well known, it gives a neutral reaction with litmus, and will promptly change acid saliva to neutral. Like borax, when locally applied it is an alterative and stimulant to the mucous membrane, and is equally valuable for stomatitis and pharyngitis.

When taken internally it is continually eliminated with the saliva, coming in perpetual contact with the mucous membrane, thus continuing its beneficial work until entirely excreted by the kidneys. The internal dose is twenty to thirty grains. It is held by some to be an oxidizer and in this way to purify and disinfect the mouth and stomach.

Another reason for its selection is its saline taste, and its consequent stimulation to the flow of saliva; alkaline saliva seems an undoubted aid to digestion, and if it can be induced to flow and be kept alkaline, many stomach disorders will disappear. The two remedies act most beautifully together, each as a complement to the

other, without danger of overdosing. The mucous membrane becoming innured and hardened to the action of these remedies, would naturally offer greater resistance to disease. The materials being selected, they had now to be combined in the proper proportions to assist each other, and to produce the desired results; clinical test was the standard selected to decide these points, and the preparation is now used very efficiently in the following proportions: Pulverized cereal, 75 per cent; sodium borate,  $17\frac{1}{2}$  per cent; potassium chlorate,  $7\frac{1}{2}$  per cent. Orris and menthol to flavor and saccharin to sweeten. The flavoring and sweetening can be varied to suit taste.

It requires at least five grains at a time of any powder to be at all efficient in cleaning the mouth and teeth, and double the portion is better; in every five grains of the above formula there are one and one-quarter grains of the combined remedies; this is sufficient to keep the saliva decidedly alkaline for some time after using. Its preservative and antiseptic properties are shown from the fact that ten grains of the powder taken into the mouth and held until dissolved, then ejected into a test tube with a dram of saliva, remained pure and unchanged for forty days, the tube remaining unstoppered.

It seems apparent that with this prescription teeth can be cleaned without injury, and that decay may be arrested; a small portion or a tablet made of it, allowed to dissolve slowly in the mouth at frequent intervals would tend to arrest decay if not to prevent it. There seems little question but that caries might be prevented if it were practicable to keep the teeth constantly bathed in a fresh strong solution of the powder; if we assume this to be true, then the nearest approach that can be made to it the better for decaying teeth. Dr. E. S. Talbot, who has been prescribing it for months, claims it to be a most valuable adjunct in the treatment of pyorrhea, and my own observations coincide with his.

DISCUSSION. *Dr. Heise:* The saliva as a rule is said to be acid, and this acid condition is the cause of decay of the teeth; but I do not believe it. The cause of decay is not the acid condition of the saliva, but the presence of food which collects between the teeth and, owing to the presence of a germ, undergoes decomposition and generates lactic acid which causes breaking down of tooth.

In regard to the preparation that Dr. Fletcher recommends, I



most highly indorse it. In chemical abrasion which occurs near the cervical border I know of nothing better. We do not get that scratching and scouring away of soft dentin as with other powders, therefore I do not hesitate to recommend it.

*Dr. H. T. Smith:* Some experiments made recently in the chemical laboratories of the Harvard College on decay of the teeth showed that generally in mouths where decay was most active the saliva was mostly alkaline, which certainly goes to prove that an alkaline saliva does not make the teeth immune to caries, although alkaline is better than acid.

*Dr. Taft:* I have had a little experience with this material and have a very favorable impression of it. Taking into account its consistency I cannot see where anyone could find objection to its use.

*Dr. Fletcher:* The teeth are largely composed of the phosphate of lime, it is not probable that any alkalies taken into the mouth would act on any portions of the hard part of tooth. These points accepted as facts have made me believe that any kind of acid coming into contact with the teeth would have more or less effect upon them. If the saliva is very mild in acid reaction I believe it assists those acids which are constantly forming in the mouth to destroy the teeth, whether it be lactic acid or something else; I think Miller and others have decided that it is lactic acid which is largely to blame for the decaying of teeth.

My own test of the saliva of animals has shown that that of the grannivorous, those which eat grain entirely, have stronger alkaline saliva than those that eat flesh. Nevertheless all the animals I have tried, horses, cattle, sheep, etc., all gave a good strong alkaline reaction to litmus paper. These animals did not have decayed teeth from this condition. In reference to those teeth which are known to exist with no decay for a long time, and which are entirely devoid of enamel, I would like to read from letter of Dr. Williams: "The one experiment, and this I believe an accident, on which the opinion is based that decay of dentin may occur without the presence of acids, can hardly be regarded by bacteriologists as of much significance. Some teeth were placed in an agar culture of bacillus gangraene pulpaе and put aside in a closet. Sixteen months afterwards they were discovered. The cementum was softened and discolored, and the dentin somewhat less so, with the dentinal tubules enlarged. The agar culture after having stood sixteen months gave

an alkaline reaction. There is nothing surprising about this, as several microorganisms which are known to be acid-producers would give an alkaline reaction after having stood in a culture medium for a much shorter time. There is at present no proof forthcoming that the culture was not at some period of its existence in an acid condition. But even if it should be demonstrated that any effect resembling caries of dentin can be produced in an alkaline medium, which I very seriously doubt, such a demonstration would not touch my position with reference to caries of enamel."

The editor of the *Cosmos* in commenting on this subject says: "No observer in this department of bacteriological research has shown that the fermentation of carbohydrates resulted in the formation of alkaline products. On the other hand it has been demonstrated beyond reasonable doubt by Miller that the formation of lactic acid by the fermentation of carbohydrates through the agency of certain bacterial forms is the essential feature of the carious process in tooth-structure. Again, it is well known that dilute alkalies are without power to disintegrate tooth-structure, while it is equally well known that the action of even dilute lactic acid will bring about separation of the enamel prisms and, if long continued, disintegration of both enamel and dentin. These facts should be taken into consideration at their full value before it can be accepted as even probable 'that an acid is not essential to the carious process in the dentin.'"—*Ohio Jour.*, April 1900.

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**PUTRESCENT PULPS AND THEIR TREATMENT.** By A. H. Peck, M.D., D.D.S.. Chicago. Read before Chicago Dental Society. The first thought that naturally presents is: What constitutes a state of putrescence; what changes in the parts involved are necessary that this condition may be brought about, and what elements are evolved and necessary to be destroyed? Gould says: "Putrescent, undergoing putrefaction." "Putrescence, the state or process of putrefaction." Thus before we can have a clear understanding of this condition we must look to the meaning of "putrefaction." In defining this term, he says: "The decomposition of nitrogenous organic matter under the influence of microorganisms and accompanied by the development of disagreeable odors due to the evolution of ammonia and hydrogen sulphid."

This is a good statement of the elementary facts, but Dunglison

gives us something better, more comprehensive. He says it is the "Decomposition experienced by animal substances when deprived of life and placed under special circumstances. Such change is now, in the light of modern research, considered as resulting from the action of pathogenic microorganisms. Presence of water is indispensable: the temperature most favorable to it is from 60° to 90° F. The most common products of putrefaction are water, carbonic acid, acetic acid, ammonia, carbureted hydrogen and a semiputrid substance which is volatilized and has an infected odor. State of becoming putrid."

Thus we have stated the majority of the elements, pathological and chemical, to be found in a state of putrescent pulp. But these are not all. How forcibly are we reminded of the fact that the conditions enumerated in Dunglison's definition are by no means the only ones, when we stop to consider that discolored teeth are almost invariably those whose canals have previously contained putrescent pulps, or those in connection with which abscesses have developed, and also if we are familiar with the chemical elements present, and the fact that they are continually uniting only to lose their individual identity, and that as a result of this evolutionary process are produced certain other elements of an entirely different nature, and which are directly responsible for the production of other undesirable results. It has been said that of all the metals, iron is no doubt most largely disseminated throughout the system. An excess of iron may be present in the blood of an individual; if so, the pulp of a tooth contains its proportionate excess of iron in the red blood globules. In a case of putrescent pulp the red blood corpuscles are broken up and the iron is set free; this, in combination with the sulphureted hydrogen, which is formed by the putrefactive process, forms sulphid of iron. Also in an individual who is suffering from ptyalism—systemic poisoning by mercury—sulphid of mercury may be found in a putrescent pulp, having been formed unto iron. And again there may be an excess of manganese in the system, in which case there may be found the sulphid of manganese in a putrescent pulp. The same might be said of lead and other poisons.

Thus you see there are many elements to be considered and to be gotten rid of in cases of putrescent pulps, aside from microorganisms and their poisonous products. It is not sufficient that we sim-

ply use a good germicide and a good deodorant if we would treat these cases intelligently and scientifically. We must understand the various properties of the drugs we use and be familiar with their ability to meet and destroy the many different elements present in these diseased conditions. We must be familiar with the fact that it is not good practice, from a scientific standpoint and also from a practical standpoint in most instances, to merely open into the pulp-chamber of a tooth containing a putrescent pulp and to dismiss the patient for a few days' time. Why? Because the opening permits the saliva and the air to enter the pulp-canal, carrying with them an excess of oxygen. It is a fact that an excess of oxygen present in connection with the sulphureted hydrogen and the oxygenated hemoglobin of the blood intensifies the reaction caused by a union of these elements, thus resulting in the formation of the real coloring material—the sulphomethemoglobin—in much less time and in larger quantities than is the case when an excess of oxygen is not present. This results in the rapid and oftentimes excessive discoloration of the teeth, one of the very important results to be avoided in the treatment of these conditions.

It is of the utmost importance that we appreciate fully the fact that the oxygenated medicines proper to be used in this connection, when intelligently used, are no doubt most efficient, producing most satisfactory results. No medicines should be used in these cases and remain any length of time, until the contents of the pulp canals have been as carefully and thoroughly removed as possible in most cases, by mechanical means. This done, I always have contended that the intelligent and conservative use of the oxygenated liquids, especially peroxid of hydrogen, pyrozone and hydrozone, constitutes a form of treatment which for thorough temporary cleansing cannot be excelled. We must understand that oxygen is one of our most valuable all-around agents. It is one of our best antiseptics, germicides, deodorants and bleachers. Any of you who have experimented with it in connection with the various preparations of iron and other metals likely to be found in putrescent pulps will surely agree that medicines containing oxygen, and that are proper to be used in this connection, should be given the preference.

I have used one agent in these cases as a deodorant with most gratifying results—meditrina. This is purified sea-water charged with electricity. This is a fairly good antiseptic; however, not so

potent as has been claimed for it, but it is an excellent deodorant. It is claimed that medietrina enters chemically into combination with the mephitic odors and gases and in this way effects their destruction. Whether this be true or not I am not prepared to state; but true it is, this agent has great affinity for these two products of the putrefactive process and very effectually destroys them. Cases in which it seems necessary to seal a deodorant for some time are of a very mean character if they will withstand the destructive effects of a thin creamy paste of beachwood creosote and iodoform.

In the general treatment of these cases our thoughts most naturally revert to a consideration of the essential oils. That we may intelligently use these agents it is not sufficient that we understand only their value as antiseptics, germicides, and their action on soft tissue. We must study them with a view of determining what other properties or elementary constituents they possess that will enable them to act successfully by destroying the various products of the putrefactive process, as well as the microorganisms and their poisonous products. In this connection I present the following general classification of the essential oils from a chemical standpoint: First, those composed of hydrocarbons only; second, those containing hydrocarbons mixed with oxygenated products, and, third, those containing sulphur compounds. A more exact division is the following: 1. Oils consisting chiefly of terpenes ( $C_{10}H_{16}$ ), and oxidized products allied thereto; such as oil of turpentine, of lemon and of camphor. 2. Oils consisting chiefly of cedrenes ( $C_{15}H_{24}$ ), and oxidized products allied thereto; such as oil of cedar, of cubebs and of cloves. 3. Oils consisting chiefly of aromatic aldehyds and allied bodies; such as oil of bitter almonds and of cinnamon. 4. Oils consisting chiefly of ethereal salts. These may be either (a) oxygen salts, as in wintergreen, or (b) sulphur salts, as in oil of mustard, oil of garlic.

The first division or terpenes, being allied to the hydrocarbons, are those composed chiefly of hydrogen and carbon. The second division are the cedrenes, which means a volatile liquid hydrocarbon found in the oils of this division. They also possess a camphor which is deposited, the formula of which is  $C_{15}H_{22}O$ . Thus the benefit of the action of the element oxygen is obtained. The third division are those consisting of aromatic aldehyds, meaning the presence of aroma in a class of compounds intermediate between

alcohols and acids, derived from their corresponding primary alcohols by the oxidation and removal of two atoms of hydrogen and converted into acids by the addition of an atom of oxygen. Remember that oils of cinnamon and cassia belong to this division. In the fourth division, or those containing ethereal salts, do we find oxygen as one of their elementary constituents, as the formula of ether is  $(C_2H_5)_2O$ . These are of course of the oxygen salts. The oils of this division which are of the sulphur salts, that are proper to be used in these treatment cases, may be employed to excellent advantage after the general debris of the putrefactive process has been thoroughly removed from the canals, as there is evolved from them a product of the sulphur series, which in combination with water forms an excellent bleaching and disinfecting agent. Thus it should be our aim, always, to use for general treatment purposes, in cases of putrescent pulps, those essential oils that belong to the oxygen series.—*Review, May, 1900.*

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**GOLD AND GOLDBEATING.** By G. H. C. Rowland, London. Pharmacists are interested in the familiar goldbeater's skin, and occasionally even yet the once common direction to roll pills in gold leaf is to be met. Goldbeating is of great antiquity, being referred to by Homer (1,200 B. C.) and Pliny (23-79 A. D.) The latter states that 1 ounce of gold was beaten to 750 leaves 3 inches square, about three times the thickness of the present average. Gold was largely used by Solomon, when a great deal of gold leaf was doubtless used for covering purposes. The art appears to have originated among Oriental tribes, and in India is still practiced under conditions involving many mysteries and great difficulties. On the coffins of the Theban mummies specimens of original leaf gilding occur where the leaves are so thin as to resemble modern gilding. The Incas of Peru appear only to have been able to reduce gold to plates which were nailed for ornamentation on the walls of their temples.

Fine gold is commonly supposed to be incapable of being reduced to thin leaves. This, however, is not so. Its use for ordinary purposes is undesirable because of the greater cost and the fact that leaves of pure gold tend to adhere to one another. It is preferred for outside work because it does not tarnish. The Albert Memorial in London and some other statues are covered with pure gold. The

fine gold is alloyed before using according to the color required. There are ten degrees of color—namely, red, pale red, extra deep, deep, citron, yellow, pale yellow, lemon, green or pale, and white. The proportions of alloy for the shades in common use are: For red, 18 grains copper to each ounce; pale gold, 5 dwt. silver; deep or medium, 12 grains copper and 12 grains silver. Pure gold is seldom required, and the same applies to double gold—that is, double the usual thickness. The deep or medium is that mostly used. The chief use of gold leaf is in the bookbinding and allied trades. Picture and mirror frame makers and gilders and decorators also use large quantities.

The first stage in goldbeating is to melt the gold in an earthenware crucible with the requisite amount of alloy, at a temperature higher than the fusing point, so as to increase its malleability. This is then cast into an ingot 3 inches long and  $1\frac{1}{4}$  inches broad. When cool the ingot is rolled between powerful steel rollers, which are gradually tightened. After it has passed through half a dozen times it requires to be annealed. It is then passed through the rollers twice and again annealed, and this is repeated six times. The ingot of 3 inches has at the end of this operation become a ribbon 20 yards long and about the thickness of ordinary note paper. The width remains the same, as extension takes place only in one direction. This ribbon is divided into two 10-yard lengths, each weighing about 3 ounces, and constituting a "piece" of work for one man.

The beater marks off the piece, and with a pair of shears divides it into 180 smaller pieces. Each of these is placed separately into a tool called a "crutch," with a piece of skin or membrane about 3 inches square between each, and the whole is inclosed in two membranous bands. This is placed on a block and beaten for half an hour with a wooden hammer weighing about 17 pounds, the labor being considerably reduced by the elasticity of the skin causing the hammer to rebound. At the end of this time each piece of gold foil, originally about 1 inch square, will have extended to the edges of the membranes, and is taken out leaf by leaf and each quartered so as to give 720 pieces.

Each of these 720 is placed in a tool called a "shoder," which is similar to the crutch, but the skins are considerably finer and 4 inches square. This is hammered for about two hours, until the

gold again reaches the edge of the skins. The leaves are taken out and again quartered, giving 2,880 pieces. The next tool is called a "mould," and is made up of the finest skins. A full mould contains 950 skins 5 inches square, so that three such tools are required for the 2,880 leaves resulting from the previous operations.

The skins or membranes which comprise the mould are about double the thickness of the goldbeater's skin as met with in pharmacies. Like the previous tools, they are prepared in France from the outer coat of the cecum or blind gut of the ox, the gut of 380 oxen being required to furnish sufficient skins for one mould. The gut is first stripped off in lengths of 25 to 30 inches, freed from fat by dipping in caustic potash solution and scraping with a dull knife, and stretched on a frame. Two membranes are glued together, treated with a solution of aromatic substances or camphor in isinglass, and coated with yolk of egg. The price of a mould is sometimes as high as \$100. It will stand years of beating before being relegated to the pharmacist to be cut up and sold as goldbeater's skin. Many substitutes have been tried for this gut, but none has been found successful.

The beating of the gold in the mould occupies five hours, and this is the most difficult stage in the process, the thinness of the gold leaf depending on the fineness of the skins and the judgment of the workman. At the end of two hours, when the gold is about  $\frac{1}{1000}$  part of an inch in thickness, it permits the passage of a ray of light for the first time, the transmitted light being green, or if much silver be present, violet. Some leaves when heated transmit ruby-red light. For some time at the commencement of the beating the blows are necessarily struck in the center of the skins. This produces heat, which tends to curl up the skins, as a hot iron does in plaster spreading. This must be carefully guarded against and occasionally the beating must be suspended for a time. As the leaves extend in size the beating is more generally distributed and this lessens the danger of heating. At the end of five hours the leaves are taken out, and each is cut on a cushion with an instrument called a wagon, the cutting edges of which are simply split rattan canes. The usual size is about  $3\frac{1}{4}$  inches square. The leaves are now ready for putting up in the tissue paper books. The leaves of the books are previously dusted with rouge to prevent the gold sticking to the pages. Transfer gold, which is used for out-



door work, is simply ordinary gold leaf pressed on to sheets of tissue paper so as to adhere, but readily coming away when pressed on to a varnished surface, thus enabling outdoor work to be carried on even in windy weather.

Between each time of using every membrane of the mould requires to be separately cleaned, each side being brushed with talc by means of a hare's foot. It is afterwards put in a hot press to remove damp. The degree of dryness is very important. If the membranes are not sufficiently dry the leaves of gold do not extend evenly, and overdryness diminishes the brilliancy of the gold.

The limit to which gold has been beaten in the manner described is 1 grain to 75 square inches. Taking the cubic inch of gold as 4,900 grains, this gold leaf is  $\frac{1}{4900}$  part of an inch in thickness, or about 1,200 times thinner than ordinary writing paper. One grain of silver has been beaten to 98 square inches, but owing to difference in specific gravity the leaf was thicker than the gold leaf. This experiment does not determine the malleability of either metal, as the means of testing it failed before there was any appearance of the limit of malleability of the metals being reached. In practice gold is not nearly reduced to such a degree of thinness as the above.

Many attempts have been made to beat gold by machinery, but without success. The practiced eye and the skilled hand seem indispensable.—*Pharmaceutical Journal*.

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**SEPTIC ACCIDENTS CAUSED BY ERUPTION OF THE THIRD MOLAR.** By Dr. M. C. Aparicio, City of Mexico, Mex. August 8, 1899, Mr. J., twenty-four years of age, came to me. The young man had scrofulous antecedents and explained that about two years ago he experienced some syphilitic manifestations which caused ganglions on the neck leading almost to suppuration and the alteration of various organs.

He was attended by a physician who within six months made his ailments completely disappear, but shortly afterward the patient was attacked by a violent and acute pain in the trifacial region. In the course of time his sufferings increased to such an extent that there was a period during which he lived only by strong narcotics. In this way the patient passed more than ten months, until he began to experience some trouble in his mouth; he felt the gum enlarged to the level of the middle part of the ascending arch of the right

lower jaw. The growth felt by the patient had produced considerable inflammatory phenomena, impeding as they did the passage of aliments, which consisted of liquids only and in small quantities.

About five or six months ago the patient saw appear all over his body an eruption accompanied by quite high fever, so he consulted a physician. To corroborate the diagnosis made, this one had to call in another physician in order to agree by consultation upon a method or mode of treatment. This was done accordingly, the physicians telling him that the blotches on his body were caused by an intestinal affection, and that with the remedy proposed the evil would disappear. Lack of means prevented the patient from procuring this medicine. His affection or disease did not disappear, and in a fit of despair he came to me as a last resort, prepared, as he expressed himself, to suffer death if I could not relieve him. The gravity of the case, and the short time in which I had to combat the disease, made me hesitate, but from motives of humanity solely I finally resolved to act.

The general state of the patient was an extreme weakness; his temperature rose to thirty-nine degrees; the whole body was covered with a septic eruption; there was a submaxillary adenitis, contraction of the muscles of the face and neck of the diseased region; a very bad odor from the mouth, the mucous membrane in septic condition, and a very severe pain in the trifacial region. These symptoms were not sufficient to determine what was to be done. I therefore decided to make a more thorough examination, for which purpose I chloroformed him and proceeded. I opened the mouth with an instrument, it being done with considerable difficulty, for there was not only the impediment of the muscular contraction, but also profound adhesions of the cheek with the jaws, which I had to break, making use of a straight bistoury. The operation had to be frequently interrupted in order to empty the mouth, which was filled with great quantities of pus mixed with blood.

The loosening being concluded, I applied an antiseptic wash and afterwards commenced reconnoitering with a lancet which I had to force, lacerating the tissues, in order to come to seat of the lesion. With great difficulty I finally succeeded in touching the crown of the third molar that was impacted obliquely in the middle part of the ascending arch of the jaw, and at a level with the articulation. Between it and the second molar there was a portion of necrosed bone

measuring one centimeter more or less, precisely in the surface of the alveolar ridge. On a level with the anterior pillar of the isthmus of the throat there was a fistulous trajectory. In order to increase the field of operation I extracted the second molar, with the intention of doing the same with the third by means of a bayonet-shaped forceps. But the extraction of this tooth proved very difficult even with the help of other instruments, due to the fact that my finger was the only probe I could use, and therefore the only one indicating the existence and situation of the tooth. Finally, after laborious work, and making use of some special elevators, the molar came out, presenting nothing abnormal, although its roots were large and convergent. Immediately after the extraction I proceeded to verify the extent of the necrosed bone, and then applied an antiseptic dressing suitable for the case. Three days after this operation the patient came to my office, telling me that although he was not entirely well he was greatly improved, as he experienced much less trouble, so that he could rest with some comfort. The patient was subjected to a rigorous antiseptic treatment lasting two weeks, I personally curing him. The internal treatment consisted of tonics and potassium iodid.

From this time I could readily note the disappearance of the disease and its complications, for day after day the blotches disappeared, having been caused by the septic eruption which covered the body of the patient. At present the evil has nearly abated, the patient being in an advanced state of improvement, recovering rapidly, so that he can attend to his work.—*Items, May, 1900.*

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**SAFETY GOLD CROWN.** By H. G. Maize, D.D.S., Germantown, Pa. Bicuspids or molars when in the condition that require crowning are generally dead teeth: oftentimes the roots are diseased and in such condition that it is only a matter of time until the tooth must be opened and treated.

About two years ago I had a case of a lower left second molar, first and third molars being out, leaving the second the mainstay in mastication. The tooth was very large and had large, straight canals, which were filled nicely with gutta-percha. the rest of tooth being filled with cement, but most of it had broken away with the anterior lingual and distal walls, leaving nothing to build on except the buccal wall.

I saw the only way to save the remaining part of tooth was to

crown it, but it had to be done in such a way that, if the tooth gave trouble, it could be opened without removing the crown. After treating tooth for some time, the canals were filled with a combination of aristol, beechwood creosote and paraffin, filling the pulp-chamber with gutta-percha, and building a column of it to the surface of the tooth, then building up and around gutta-percha with cement. Made a band and swaged a cusp in the usual way, but before flowing cusp, pushed a hole in it right over the column of gutta-percha, using an instrument shaped like a pencil point, making an opening with flanges on the under side of cusp; then flowed and soldered to band. A disk to fit opening in cusp was then made.

A piece of 36-24 K. gold was burnished perfectly to edges of opening, removed, carefully placed on a piece of charcoal and flowed full of 22 K. gold, making a solid disk perfectly fitting the parts. A cone was then made of a piece of platinum wire of suitable thickness, soldered to under side of disk, making an inverted cone connection to disk. The crown was cemented to place, all cement removed from opening, leaving gutta-percha column directly underneath. After drying parts thoroughly, the disk was heated to almost redness and pressed to place, making a complete crown with a removable disk directly over the pulp chamber. When the disk is to be removed, take a suitable sized burnisher, heat thoroughly, place it over disk, which is a good conductor and soon softens the gutta-percha, after which it is easy to remove disk; take out gutta-percha and we have free access to canals.—*Items, May, 1900.*

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**MODIFIED WIRE CLASP.** By Dr. F. L. Bogue. Read before the New York Institute of Stomatology, Feb. 1900. I think it would not be amiss to call attention to the ordinary wire clasp, which is not in general use. Although working independently, the forms of clasp devised by various men are almost identical. The gauge of the wire used in these clasps is from nineteen to twenty-one, depending upon the relative degree of rigidity or elasticity required. Some of the advantages of these clasps are: lightness combined with strength; great elasticity; can be easily bent to fit teeth of any shape, especially convex teeth, the lower wire fitting under the tuberosity, the upper wire above it; minimum contact with the surface of the tooth, which is an advantage because a tooth bearing a clasp is injured not only by mechanical abrasion, but by the

chemical decomposition of the *debris* held in contact with the tooth by the clasp.

The modification I wish to present this evening was designed for a case in which the back tooth tipped forward, forming a space which was largest at the gum margin. The idea was to make a fixture easily inserted and removed, and yet one that would fit the teeth when in position. The clasp for the back tooth was made and attached to the plate, as though no undercut existed. The standard for the forward clasp was soldered the thickness of the clasp wire back of the front edge of the plate. This is done in order that the plate might extend as far forward as possible without having the clasp wire interfere. The upper end of the standard was bent forward almost at a right angle, in such a way that when the upper wire was soldered to the front of the bent end of the standard, the wire would be in contact with the tooth. The object of bending the standard in that way was to prevent the fixture from being driven forward during the act of mastication. The forward clasp, which was shaped like a hairpin, was fitted to the tooth. The upper wire was soldered to the standard; the lower wire, being left free and fitting the neck of the tooth, was brought far enough around to be accessible from the front. When it is desired to remove the fixture, the lower wire is pressed back against the standard and the plate lifted up from the front end.—*International, May, 1900.*

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**TO REMOVE BLOOD FROM THE CLOTHING.** By J. T. Rugh, M.D. Several years ago while contemplating the removal of a large bloodspot from my clothes, I recalled the action of hydrogen peroxid upon albuminous substances during operations, so immediately applied it to the spot in question, and was delighted to see the stain entirely removed. Since then I have used it many times and always with the same results. The earlier the peroxid is applied after the bloodspot is received the better the effects, but I have used it on spots over a week old, and they were completely erased. It should be used full strength, and after oxidation has ceased should be wiped off and another application made. Several such trials may be necessary before the stain disappears, but the process can be hastened by rubbing with the finger or a cloth while oxidation is in progress. If hot water has been used, or anything which will coagulate the albumin, the peroxid will not remove the

stain, but otherwise its action is all that could be desired. I have frequently removed spots from my shirt front, collars and cuffs, and after the place dried there was no evidence of any soiling having occurred. Quite recently I removed a very large stain from the carpet, following an operation in my office. I have never seen clothing bleached by the peroxid during removal of spots.—*Phila. Med. Jour.*

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**PROSTHETIC RESTORATION OF AN AMPUTATED TONGUE.** By G. B. Terrell, Yonkers, N. Y. Read before the New York Chapter of the Psi Omega Dental Fraternity, Jan. 26, 1900. The patient was a man of more than ordinary ability, and could write and converse in seven or eight different languages. He knew how to appreciate everything that was done for him, and greatly aided the experiments by his patience and faith in their outcome. As he begins the history himself, he noticed a smarting sensation at the frenum of the tongue, and upon examination discovered a small ulcer or pimple, as he expressed it. He had been an inveterate smoker, smoking twenty or thirty cigars a day, and immediately upon discovering the pimple he felt a fear of cancer. He applied at a near-by drug store, where the druggist cauterized the pimple with a stick of nitrate of silver. The soreness continuing, the patient applied the caustic himself; and then becoming more alarmed, went to the surgeon of a hospital in St. Paul. At the hospital a piece of the unhealthy tissue was removed and examined by a microscopist, who diagnosed it as epithelioma. An operation was held out to the patient as the only possible means of saving his life, and he therefore submitted himself to the surgeon's knife.

The operation, which took place about Sept. 15, 1898, was performed by dividing the inferior maxilla at the symphysis, the bones were pressed aside, the muscles divided, thereby getting to all of the affected parts, and about two-thirds of the tongue, or to the circumvallate papillæ, cut off, taking out some of the soft tissue under the tongue, making a deep depression between the stump and the lower teeth. In sectioning the jaw the surgeons cut out the bone the width of the central incisors, taking the teeth away with it. Why this was done I do not know. After the operation the cut ends of bone were brought together and fastened with silver wire. The soft tissues healed nicely, but the bones failed to unite. The

silver wires, together with the mobility of the severed parts, caused an irritation which developed abscesses, one of which opened under his chin and the other inside his mouth. The silver wire was then taken out and the jaw left to take care of itself, a fibrous union being the result.

After stopping at the hospital about three months, during which time he subsisted on liquid and soft foods, he came to New York City with the hope that something might be done for him. Prof. Weisse presented him at the Thursday clinic of the New York College of Dentistry about December 15, 1898. It came my turn to take this patient, and I made an appointment to take an impression of his jaw. He came at the appointed time, but he did not then take an impression. I never realized before the real use of the tongue as a swab for keeping the buccal cavity clean. In the roof, cheeks, gums and teeth was a thick deposit of mucus, pus, tobacco stain, and decaying matter such as I had never seen before. In the depression of the floor of his mouth was also this abscess sending out its thick, yellow pus. It took three sittings to get his mouth into even fair condition for taking an impression, and I used plenty of one per cent solution of formalin while doing it. He had been eating soft food for the last three months, and no one had even told him to swab out his mouth with a piece of cotton or sponge. The patient always had a feeling of nausea since the operation, and had fainted several times because of the nasty condition of his mouth, though he had used as mouth-washes creolin, peroxid and permanganate of potassium. After I cleaned his mouth he continued to improve in health.

Upon examining his jaw I found that the sawed surfaces rocked so that when his mouth was opened the teeth came together in the median line, and when the mouth was shut the teeth were separated as much as three-sixteenths of an inch. I concluded to make a cap splint, as it would allow the mouth to be opened and the abscess treated. I therefore took an impression of his lower jaw in plaster the usual way, and made my splint of block tin. I then took an impression of his chin, made a model of a chin cap or cup, making it as light and airy as possible, and duplicated it in block tin also. I then bent two pieces of round wire, a piece for each corner of the mouth, and fastened by a screw one end of each to the splint, then passing them out at the corners of the mouth bent them down the chin, and

then under where the other ends were tapped and threaded to hold a machine screw which impinged against the under side of the chin cup, thus making his jaw fixed as if placed in a vice. The chin cup was lined with lint, and he kept his chin smeared with vaselin to prevent chapping from the saliva which flowed out of his mouth. The patient declared the apparatus felt very comfortable. The surgeons at the hospital in Long Island City, where he was stopping at this time, were skeptical as to a union taking place, but in seven weeks' time the patient took the splint out and we found a perfect union.

While working on the splint it occurred to me that some kind of an apparatus might be put into his mouth that would at least enable him to eat something beside soft food. He had a continual longing for a piece of meat to chew upon. He could not chew anything, as he had no tongue with which to keep the food between his teeth, and it fell into the depression in front of the stump of tongue, from which it had to be washed out by drinking. I felt quite certain that we could make something that would help him to eat, and while experimenting with him other satisfactory results were developed. The patient was more than willing to be experimented with, though I told him not to expect too much. As a preliminary experiment I simply modeled a piece of modeling compound to fit in the depression between the stump and the teeth, and level with the top of the teeth and dorsum of the tongue. Although it fitted in loosely, the patient could talk a little better with it. I then pictured in my mind about the kind of an apparatus I would make, and though I first tried several other experiments, I came back to the original idea. I will tell you some of the ways I tried first.

I first took a model of the lower jaw and teeth in zinc, then swaged a piece of German silver to fit around the inside of the teeth from the last molar on one side to the last molar on the other, reaching from the gingival margins to the cutting-edges of the teeth, and bending over several little lugs to fit in the sulci of the morsal edges to prevent the rim from cutting down into the gums. I then soldered a gold clasp on each last molar and the first bicuspid on the right side, and next a round platinoid wire across the heel of the rim from molar to molar. Then swaged another piece to fit inside of the first piece, and holding them together, bored and tapped to hold small screws. Next spread a piece of rubber-dam



over this frame, tucking the edges between the two rims, the screws holding it all in place. Then a little trigger was made to swing on the round wire in the back, the back part of which was beveled under to fit against the stump of tongue, and a long piece to project out under the rubber-dam, the purpose being that, the rubber forming a floor for the mouth, the stump of tongue in moving would push the beveled end of the trigger, which would swing on the wire, and pushing up the long end against the rubber would cause it to bag up and throw the food between the teeth, where the buccinator muscles would take care of it on the other side. This arrangement did not prove satisfactory, as the food packed up on the rubber; the rubber was offensive, and there was a feeling to the patient of something wanting.

In my next experiment I took the trigger and rubber-dam out and filled in the whole frame from the tongue to the teeth in front with modeling compound, flattening it toward the back, but rounding it up in the middle with sloping side toward the morsal edges of the teeth. The object was that the food might continually slide in between the teeth while being chewed upon, but this is what it did not do. The food packed between the mound and the roof of the mouth, and the voice was very much muffled.

My next and last experiment was to take the outer rim which I had swaged, and as it was very irregular on account of its following the lines of the teeth, I tacked against it with solder a strip of thin platinum plate, making a perpendicular walled box on the inside. Then filled in between these two pieces with solder, making a rim of solid metal with the top edge even with the top of the teeth. I now modeled out of modeling compound a tongue to fit inside this walled rim with a thin flange projecting from the tongue and resting all around the top edge of the rim, making it nearly flat on top, and toward the back making a gully as a sort of director for grinding the food into the esophagus. The back end of the tongue was made thick and beveled under, so as to fit the stump. The compound was molded around the wire in the back, so that any movement of the stump imparted motion to the artificial tongue, causing the end to tip up. After getting the proper shape of a tongue in modeling compound, I duplicated it in block tin, which I found to be too heavy. It was so heavy that it tired the patient's stump of tongue. I then made one of red vulcanite, weighting it

near the thick back end. The last thing was to attach two molars to the rim on the right side to replace two of his own that had been lost, and the artificial tongue was completed.

The motions of the muscles against the tongue kept it in motion, causing a constant agitation of the food, and throwing it back into the esophagus. The buccinator muscle of course prevented the food from lodging between the cheeks and teeth, and as an eating-machine it proved very satisfactory. I can very well remember his pleasure at having eaten his first piece of meat. While talking the tongue bobbed up and down, and it certainly made his enunciation much plainer; and though I wished it might be better, he felt quite satisfied, and said he did not feel dressed without it, and he never cared to talk to strangers without his tongue in place. Last, but not least, was the comfortable feeling it gave to his mouth. He said, "You have no idea the rest it gives to my mouth; it seems to fill a void left by the amputation. If for no other reason, I would wear it in my mouth for that."

The patient was intending to have one made in gold and red vulcanite after the pattern of the one just experimented with, and upon which I intended to improve a little in fastening the tongue to the frame, and some other minor things, but the recurrence of cancer showed itself in enlarged glands of the neck, and he underwent an operation from which he died Dec., 1899.—*Cosmos*, April, 1900.

\* \* \*

**BEST MATERIAL FOR FILLING CHILDREN'S TEETH.**  
By J. Leon Williams, London. The first question that arises in connection with this important matter is, "Why should there be any difference between the material used for filling children's teeth and that provided for adults? The answer, in general terms, is that the tissues forming the teeth of children for a number of years after their eruption differ from those of adults, inasmuch as they are in an undeveloped condition. The normal development of dentin, even at the time when the exterior formation of the teeth is completed, is in an imperfect condition, the pulp occupies a larger proportion of the internal body than at a later period, and the tubules have a larger diameter and contain a greater quantity of organic matter. This period of imperfect development is a well-known fact, though its limits have not been actually and certainly defined by careful observers. There is another consideration also which it is neces-

sary to remember ; that in the histology of dental tissues it is recognized that a slight irritation, such as might be caused by the constant attrition of opposing teeth, is felt through the whole mass of the dentin, and has the effect of exciting the odontoblastic cells to renewed vitality, and the formation of secondary dentin. If this irritation is greater it will inevitably result in the destruction not only of the contents of the tubules, but of the pulp itself. There is a probability of this irritation being most violent during the years between eleven and twenty, so that it is imperative during this time to avoid all irritants which may act destructively on the dentin, and so endanger the life of the teeth.

But taking this as a general rule, a variety of considerations must guide the operator in his choice of a proper filling material. The age of the child, its temperament, the condition of its health, its sex ; the size, condition and location of the cavity, and the characteristics of the decay—all these must be borne in mind. At first sight it may not be apparent why these circumstances should affect the choice of a filling material, but on consideration it will at once become clear that they all have an intimate bearing on the subject. It is too often the case that very little discretion is exercised, and that the teeth of childhood and youth are filled with the same materials and by the same methods that would be used in adult life. In other words, a system of mere routine is followed, the effects of which are shown by the general failure of the fillings inserted in childhood. It is impossible to make a hard-and-fast rule which shall apply in every case during the years from the appearance of the first permanent incisors to the time of puberty, and each case must be judged on its own merits, even when we apply the considerations enumerated above. There are certain things which would be eminently suitable for a child of thirteen or fourteen, but absolutely wrong in the case of one of seven or eight years of age. This stands to reason, if only because the development of the teeth at the latter age is a long way behind those at the former.

With these considerations well understood, we may proceed to the actual matter under discussion. A writer, in speaking of the irritation which we mentioned, continues as follows : "It is therefore imperative to avoid all materials which will produce this irritation. Hence all of those which act as good conductors of thermal influence must be excluded, such as gold, amalgam, or even the phos-

phate cements. This narrows down the list. Thermal action, if slight, may be productive of good in creating an increased vital action, producing an increased nutrition in dentin, greater density, and consequently more power of resistance ; but this unfortunately is very exceptional. The general result is that irritation upon hyperesthetic tissue is persistent and invariably ends in pathological conditions." He then notes that under these conditions the list is limited to two suitable filling agents—tin and gutta-percha. The former is a poor conductor and if used with perfect science is a reliable filling. The color is objectionable, but as the object of the operator is to save teeth till age produces an increased density, this is not a very formidable matter. Gutta-percha is preferable and makes admirable fillings, though they will require renewal.

Oxyphosphate or oxychlorid of zinc is not to be altogether depended upon, for it may have an injurious effect upon the sensitive tissues of young teeth. There is, however, one fact in its favor, which may induce some workers to give it precedence over the others mentioned, and that is, the ease with which it can be inserted, without the necessity of the patient undergoing any very great pain. This is an important consideration, because if a child suffers great pain the probability is that he will avoid the dentist for the future as much as possible, and his teeth will be neglected. On the other hand, if the operation be painless, or nearly so, the child's confidence is retained, and at a later period there will be no difficulty in putting in a more permanent filling.

It must not, however, be forgotten, in considering the most suitable filling for children's teeth, that although gold is contraindicated as a rule, it still has its supporters under certain conditions. But in general it may be taken as being unsuitable. Writing on this subject Dr. Wedelstaedt exemplified the use of gold in filling children's teeth by a comparison; the substance of which was as follows: Two children are brought to the dentist, a boy and a girl. The boy is ten years of age, sturdy, strong and eager ; he has roses in his cheeks, his eye is bright, and he shows every sign of health. His sister, who is twelve years of age, is the very opposite of the boy. The cavities in their teeth are practically the same. In the case of the boy, having studied the cavities carefully, the decision would be to use gold fillings, with the hope and expectation that they would be permanent. For the girl, whose general health and

physical condition are in a very inferior condition, the filling would also be gold, but there would be the certainty that within five years she would return with linguo-gingival decay around the margins of her fillings. In the case of the girl it does not appear at all clear why gold should have been used, for in its results it has no advantage over any other filling, and may have acted injuriously instead.

On the whole it may therefore be laid down as a truth that the use of gold in filling children's teeth, when used at all, must depend largely on the temperament of the patient; it must be a question of physical and mental stamina. Some children at a given age exhibit twice the amount of moral courage and physical capacity for the endurance of an operation that is seen in others of the same age. This is a phase of the subject that should be carefully estimated and studied by the dentist, and the gold filling should be postponed until it is quite certain that the patient is well able to stand the wear and exhaustion of the operation. As a general axiom it may be stated that until such time as the anatomical changes which are natural between the periods of childhood and puberty have occurred, it will be wise to discard gold in favor of some other suitable filling such as we have mentioned, unless there should be some special reason for its use, always remembering the apophthegm of a well-known writer on this subject—"In proportion as teeth need saving, gold is the worst material to use."—*Brit. Dent. Jour.*, May, 1900.

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**PREVENTION OF DENTAL DISEASES.** By J. Leon Williams, London. Treatment for the prevention of decay of the teeth and other oral diseases is not receiving that attention from the dental profession which the results of the latest scientific research in this direction demands. With the complete demonstration that the sole immediate cause of dental caries is acid-forming bacteria, which are always to be found in the mouth, the possibility of preventing decay of the teeth became apparent. Theoretically it seemed evident that this great boon might be conferred on humanity at once, but practically there are still difficulties in the way of its realization. I have several times called attention to the important fact, now well known to all bacteriologists, that several forms of bacteria found in the human mouth produce acid when grown upon certain culture media, but give no acid reaction when cultivated on other media. This fact is undoubtedly related to the heretofore mysterious phe-

nomenon of rapid decay in some mouths and an almost complete immunity in others. The great variation observed in this respect is not due to differences, either of tooth structure or of the condition of the general health. Nor is it due to food habit as has so often been claimed. Recent inquiries in this direction have made it evident that while food habits constitute a factor in the problem of dental caries, yet they are not of primary importance. Certain members of a family which have the same food habits will have rapid decay of the teeth, while other members of the same family are comparatively immune. Certain people may eat freely food containing starch and sugar in various combinations and still show but little dental decay, while others who have eliminated sugar from their diet to the greatest possible extent suffer from rapid decay. It is furthermore a matter of common observation that life-long invalids have good teeth, while many who have always enjoyed robust general health find it necessary to frequently visit the dentist to save their teeth from decay. Investigation is making it more and more clear that while all of the conditions above-mentioned, the structure of the tooth—especially the enamel—the food habits of the individual, the conditions of the general health, constitute factors in the problem of dental decay; yet the most important cause of all is not to be found in any or all of these conditions. This important factor is some state of the fluids of the mouth—chiefly the mucous, as I believe. I am growing more and more to look upon the condition of the mucous membrane as intimately associated with the health or disease of the teeth. Vitality is the great germicide, and local vitality in the mouth, especially the vital condition of the mucous membrane, is in my judgment the prime factor in this great problem of decay of the teeth, so far as predisposition is concerned. By vitality we mean simply the *ensemble* of all the physical, chemical and physiological conditions which make for perfect health.

The dental disease which we and our patients dread most of all—the disease which terminates in the loosening and ultimate loss of the teeth—starts, I believe, in the mucous membrane. It begins as a lack of vital tone in the soft tissues immediately surrounding the tooth; may be nervous or vascular in its inception; and probably arises as some slight defect in the functioning of the vaso-motor nerve terminations. This results in lack of muscular tone in the walls of the blood-vessels and secretions so altered as to produce

various phases in the activity of the pathogenic bacteria of the mouth. Tissues which have lost vital tone are not only more easily attacked by bacteria, but it is also probably true that a depressed condition of the vitality of the tissues with which bacteria are in immediate contact modifies unfavorably the action of these micro-organisms upon the tissues. Certain abnormal conditions resulting from lowered vitality may favor the pathogenic action of bacteria especially concerned in the loosening of the teeth, and other conditions may so modify the action of other forms of bacteria as to result in the rapid production of the acid which causes decay.

The results of the past five years' scientific study and experiment, and close observation of almost every abnormal condition of the mouth, have convinced me that much more can be done than is being done to maintain a healthy condition of the mouth and prevent both loosening and decay of the teeth. First of all our patients must be impressed with the fact that our success in treatment for the prevention of dental disease must be very largely due to their cordial and persistent cooperation with our efforts. In cases where this can be secured, where our instructions are faithfully carried out, the results are very gratifying. With the knowledge now in our possession as to the causes of dental caries and the means for treating it, *decay of the teeth can be largely prevented.*

I have several times pointed out in this connection that those substances which are the most efficient germicides in laboratory experiments are not necessarily the best agents to use in the mouth for prevention of decay of the teeth. Carbolic acid, for instance, which is so extensively used in tooth powders and dentifrices, is one of the least efficient and desirable germicides to use for this purpose. The thing desired is such a combination as will act *most beneficially upon the mucous membrane and most destructively upon the pathogenic bacteria at the same time.* Experiment alone will give us the necessary data for determining this. At present the preparation of antiseptic washes and dentifrices is in the hands of those who have no expert knowledge of what is required. Most manufacturers of these articles are not even in touch with those entitled to speak upon the subject. This does not deter them from making use of the results of scientific research for advertising purposes, and often the exact language used in stating such results appears in unexpected places.—*Brit. Dent. Jour.*, March, 1900.

# The Dental Digest.

PUBLISHED THE TWENTY-EIGHTH DAY OF EVERY MONTH

At 2231 Prairie Avenue, Chicago,

Where All Communications Should be Addressed.

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## Editorial.

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### THE DENTAL DIGEST AND ITS DETRACTORS.

Since the organization of the Dental Protective Association, and the publication of the DENTAL DIGEST as its official organ, it has been our fortune—good or bad—to have raised considerable opposition. In view of our object, which was to liberate the dental profession from an irksome sort of bondage, this was to have been expected, particularly from those whose nefarious practices we were pledged to combat. We looked for it, in fact we should have been disappointed and have felt that our mission was turning out amiss if it had not raised this sort of thing.

What we did not expect, however, was a certain undercurrent of opposition from those in whose interests we were really working and who should have been the foremost in lending aid. It is this that has surprised and hurt us—not because we were personally affected by it, but because of the injury to the cause for which we were contending.

We think much of this abuse has been due to misapprehension and misunderstanding by those taking part in it—at least we are disposed to be generous enough to give them the benefit of the doubt. Now, however, we wish to bring the matter fairly and candidly to the front and then let the profession judge as to the merits of our policy.

We have been charged with not keeping the membership of the Association sufficiently informed as to its internal workings. Must it not be clear to all thinking men that the surest way to arm an enemy is to give him information as to the acts and intentions of his opponent? Is it possible that the profession does not well enough know the character of its foes, to be assured that every jot or tittle of information published in this journal would be seized on by these enemies and used to their advantage? These cases should be tried in the courts and not in public journals, and we have been



simply safeguarding the interests of the Association when we have avoided issues of this character in our pages.

It has also been charged that we personally have become suspicious and supersensitive, and that we fly at the throats of our friends (!) on the slightest provocation. Well, we ask in all calmness and fairness, if years of fighting against as crafty and unconscionable foes as ever menaced the welfare of any profession—foes who stop at nothing mean, cowardly, underhanded or dishonest to further their ends, who would employ bribes or blackmail or perjured evidence to win their point against the profession; whose methods are such that it has been a question of eternal vigilance to checkmate them and frustrate their dangerous designs—we ask, whether this kind of an experience is not calculated to raise some little suspicion? If we had not been suspicious and watchful our cause would long ago have been lost. And on top of this, is it not enough to create a double suspicion when we find those whose interests should have been the Association's interests, and who should have stood by the profession through thick and thin, selling themselves, their influence, and even their journals, to further the interests of the enemy? If we are unduly suspicious we have been rendered so by the despicable conduct and culpability of those who should have aided instead of trying to undermine the reform work.

A further and graver charge is that we have misused the funds of the Association, have spent them foolishly, and even have stolen them. It must be understood by every intelligent practitioner that such attacks on us personally are made by the profession's enemies to lessen confidence in us and our work simply and solely. No subsidized editor, supply house or emissary of the Crown Co. has ever or will ever dare to make a specific charge against our honesty. The fact that the leading men in the profession have every confidence in us, and also that within the past two months the state dental societies of Illinois, New York, Connecticut, Kentucky, Michigan, Massachusetts, Indiana and North Dakota have passed the strongest kind of resolutions, expressing absolute faith in our integrity and ability, urging us to continue with the work, and rebuking those who seek to break up the Protective Association—all this should reassure any misinformed brother who may possibly have been led astray by his false friends.

The day will come when all the petty meanness we have been sub-

jected to—as well as the authors of it—will see the light, but for the present we must bide our time and devote our entire energy to the one object in view, namely, the suppression of the octopus which to-day hangs over the profession. And in this connection we must state once and for all, that we have no time to further notice the puerile personalities that are from time to time aimed at us by these small-minded and jealous individuals, who would serve their own interests and their future reputation to better advantage by tendering to our cause their loyal support.

We do not intend to be diverted from our main purpose by paying any further attention to petty gibes or insults, and we merely ask the profession to wait the ultimate issue of the present various contests before they pass judgment on our policy. We are entirely willing to stand or fall on the result.

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### “WHAT WILL THE POLICY BE?”

We publish in this issue an article with the above heading by the late Dr. Menges. He had intended this for publication in the June DIGEST, so as to appear a few days before the meeting of the Faculties' Association, and in compliance with his wishes expressed some two or three weeks before his sudden demise, we publish the article this month. It contains many strong and even radical statements, but we do not think they will be contradicted by any college men in the country. Coming from a well-known educator, and the secretary of one of the largest dental institutions in the United States, the article carries additional weight, for the criticism of the Faculties' Association in this case comes from one who was closely connected with it, and not from an outside source.

As Dr. Menges has said, the National Association of Dental Faculties has been given almost unlimited power by the dental profession, and must live up to the high ideals set for it or else forfeit the confidence, respect and support of all practitioners. We are not sufficiently versed in this matter to suggest any course of action, but we certainly feel that there is a great chance for improvement in dental educational affairs, and the profession looks to the Faculties' Association to better present conditions. We think enough rules have been passed, but it is an open secret that several of the laws set forth by the N. A. D. F. have not been lived up to by many of the schools belonging to that organization. College men do not

hesitate to state that such is the fact, and in this remissness we believe most of the evil lies.

For several years we have been urging that the greatest improvement in dental education would come when the Faculties' and Examiners' Associations could consent to bury petty jealousies and pride and work together. This year the two organizations meet at the same time and place, and if the predicted harmony materializes we shall hope to see these two ruling bodies at last acting in concert. At present the question of what the qualifications shall be is wholly in the hands of the Faculties' Association. Perhaps it should remain there, but we feel that the state boards and National Association of Dental Examiners can render great service to the profession and to the Faculties' Association by aiding that latter organization in enforcing the regulations laid down by it.

Just now the state examining boards are with few exceptions doing their work in a most careless and slipshod manner, and are not nearly covering their possible field of usefulness. If, however, the Faculties and Examiners could once come to an agreement, each would greatly help the other and both would be in better repute among the profession. The unification of state laws can be brought about by these two organizations more readily than by the whole dental profession combined. Furthermore, if the Faculties' Association lived up to its rules and regulations, and the examining boards knew this, there would in all probability be no need for graduates to pass examinations, as their diplomas would entitle them to a license. There is a great and honorable future for both the Faculties' and Examiners' Associations, if they will only live up to their opportunities and the best there is in them.

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### DENTAL PROTECTIVE ASSOCIATION.

Some things which have transpired within the last few weeks will undoubtedly be of interest to our readers. Up to date the Crown Co. have commenced about fifty suits, all east of Ohio, but they openly state that they expect to shortly bring 1,000 additional ones. As our readers have already been informed, they attempted to force settlement of some of these cases by placing U. S. marshals or receivers in the dentists' offices. The Association furnished a bond and checkmated this move, as the marshals were immediately removed. We then took the matter into court, where the Federal

judge in Boston pronounced the Crown Co.'s action illegal, and we now have that organization under bonds for damages.

Their next move was to secure an order from the court in New York, compelling one of the members sued to bring his books and have an examination of them before a master. This action the Association's attorney opposed, on the ground that the Supreme Court of the United States had decided against any such procedure. But Judge Lacombe, before whom the motion was argued, overruled Mr. Offield's objection and allowed the examination of the books to be carried out. The Crown Co.'s attorney is now attempting to make much capital out of this ruling. He omits, however, to explain that the following week when the Crown Co. attempted to carry out the same course in Boston, the Court of Appeals—the highest court in that Federal district, refused their order and pronounced such procedure illegal. Our attorneys are confident that should the Crown Co. ever secure a judgment on Judge Lacombe's ruling, we could have the entire proceeding reversed in the Supreme Court, and then overthrow them.

The Crown Co.'s attorney is now sending the following letter to several of the dentists who have been sued :

[Copy.]

DEAR SIR:—The court has granted an order directing your examination before trial in the above case. The plaintiff's right to do this and examine a defendant's books has been established recently in its case against the Hanks Dental Association, Judge Lacombe overruling all the objections interposed by Mr. Charles K. Offield, the counsel for the Dental Protective Association. The examination of Dr. Hanks required five sessions before the master appointed for the purpose. He was obliged to produce all the books of the corporation and was examined at great length as to his patients and the operations involving bridge work performed upon them. The cost of the examination in master's and stenographer's fees alone aggregated nearly \$200, which item will be charged against the defendants as a part of the costs on the plaintiff's entering judgment on the merits in this case.

It is the wish of the plaintiff to recover its legal rights against you at the least trouble and expense to yourself. It therefore directs me to extend to you the opportunity of voluntarily filing a verified account with me showing each and every operation involving bridge work by you performed between the dates of April 12, 1894, and March 15, 1898, and the respective amounts received by you for such work. If this account is presented by you at this office in person or by attorney, duly verified, within ten days from the date of this letter, and proves satisfactory, there will be no occasion for putting you to the annoyance and expense of an examination.

Should you require any further particulars as to the requirements of the account, I should be glad to afford them to you or your attorney at this office. Failing to hear from you by the date specified, measures will be taken to insure your attendance for the purpose of a thorough examination before Arthur H. Masten, Esq., the special master appointed by the court in this case.

Yours, etc.,

W. D. EDMONDS.

It is very evident that the sole object in so doing is to try and force dentists to settle by annoying them with such communications and threats. In all cases we advise members of the Association to make no settlement and to render no accounting, as we are entirely confident that we shall eventually overthrow all the Crown Co.'s claims in court.

Their last move has been to bring suits on the Richmond bridge patent, which was taken out more recently than the Low. This patent was declared by the New York courts to be invalid and an infringement of the Low. The game just now is to secure a reversal of this decision, and after exhausting the claims under the Low bridge patent, to make the profession pay royalty on the Richmond. We are prepared to meet this new issue, and as before stated, we have no fear but that we shall finally defeat absolutely every claim of the International Tooth Crown Co., but it will undoubtedly be a long, hard fight, and we would again urge upon the membership that they stand together and present a united front against their enemies and those of the profession.

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## Notices.

### KENTUCKY STATE DENTAL ASSOCIATION.

At the annual meeting of this society, May 29-31, 1900, the following officers were elected: Pres., J. M. Jewett; V. P., W. W. Barnes; Treas., F. B. Wilder; Sec., F. I. Gardner.

### COLORADO STATE DENTAL ASSOCIATION.

At the annual meeting of this society, June 12-14, 1900, the following officers were elected for the ensuing year: Pres., E. R. Warner; V. P., J. A. Smith; Sec., H. F. Hoffman; Treas., Wm. Smedley.

### NORTHERN OHIO DENTAL ASSOCIATION.

At the forty-first annual meeting of this organization, June 4-6, 1900, the following officers were elected: Pres., F. W. Knowlton; V. P., J. F. Stephan; Cor. Sec., W. T. Jackman; Rec. Sec., W. A. Siddall; Treas., B. A. Allen. Eleven dentists were elected to membership.

**WASHINGTON STATE DENTAL ASSOCIATION.**

At the annual meeting of this society, May 19, 1900, the following officers were elected: Pres., C. L. Erwin; First V. P., A. B. Bailey; Second V. P., W. E. Burkhart; Sec., E. J. Fisher; Treas., W. A. Wright. The next meeting will be held in Seattle, 1901.

**CALIFORNIA STATE DENTAL ASSOCIATION.**

At the annual meeting of this organization, June 19-21, 1900, the following officers were elected for the ensuing year: Pres., A. F. Merriman, Jr.; First V. P., A. M. Barker; Second V. P., F. L. Platt; Third V. P., L. Van Orden; Rec. Sec., W. Z. King; Cor. Sec., W. J. Taylor.

**GEORGIA STATE DENTAL SOCIETY.**

At the thirty-second annual convention of this body, June 12-14, 1900, the following officers were elected: Pres. W. H. Weaver; First V. P., H. H. Johnson; Second V. P., A. M. Jackson; Rec. Sec., S. H. McKey; Cor. Sec., O. H. McDonald; Treas., H. A. Lawrence; Editor, T. P. Hinman.

**MAINE STATE DENTAL SOCIETY.**

The thirty-fifth annual meeting of this body will be held in Brunswick, July 17-18, 1900. All dentists are invited to attend these meetings. The executive committee have arranged an interesting program and hope for a large attendance.

H. A. KELLEY, Sec., Portland.

**MARYLAND STATE DENTAL SOCIETY.**

At the annual meeting of this organization, June 8, 1900, the following officers were elected for the ensuing year: Pres., G. M. Smith; V. Ps., J. G. Grieves, H. A. Wilson; Rec. Sec., J. K. Burgess; Cor. Sec., L. W. Davis; Treas., A. C. Pennington; Ex. Com., B. Holly Smith, C. M. Gingrich, C. C. Haines.

**MASSACHUSETTS STATE DENTAL SOCIETY.**

At the thirty-sixth annual meeting of this body, June 5-7, 1900, the following officers were elected for the ensuing year: Pres., John F. Dowsley; First V. P., F. S. Faxon; Second V. P., A. J. Flanagan; Sec., E. O. Kinsman; Treas., J. T. Paul; Editor, W. E. Boardman; Librarian T. W. Clements.

**WISCONSIN STATE BOARD OF DENTAL EXAMINERS.**

The next meeting of this organization for examination will be held at LaCrosse, July 17, 1900, at 9 a. m. The examinations will be conducted in English, in writing. A practical demonstration is also required, and applicants must furnish their own instruments and patients.

W. H. CARSON, Sec., Goldsmith Bldg., Milwaukee.

**MICHIGAN STATE DENTAL ASSOCIATION.**

At the annual convention of this society, June 11-13, 1900, the following officers were elected for the ensuing year: Pres., S. M. Fowler; First V. P.,

C. H. Oakman; Second V. P., E. A. Honey; Treas., Geo. H. Mosher; Sec., C. C. Noble. There will be no meeting next year, the Tri-State Convention taking its place. The students of only five dental colleges are allowed registration without examination in Michigan.

#### INDIANA STATE DENTAL ASSOCIATION.

At the annual meeting of this society, June 19-21, 1900, the following officers were elected: Pres., Geo. E. Hunt; V. P., C. E. Pittman; Sec., F. R. Henshaw; Treas., W. W. Munger.

All dentists in attendance at the meeting who had been in the practice of dentistry from twenty-five to forty years organized an association to be known as "The Patriarchs of Dentistry."

#### RESOLUTIONS BY CHICAGO DENTAL SOCIETY ON DR. MENGES' DEATH.

For, as much as the Almighty God has taken to his home the spirit of our beloved associate, Theodore Menges, who for many years was not only an honorable member of the Chicago Dental Society but a valuable and sincere supporter of dental educational work, giving freely of his time, mind and substance in his noble purpose; the advancement of a higher dental educational standard in America, and in this we shall greatly miss his strong and charming personality and upright character; be it

*Resolved*, That in his death this society and the profession of dentistry are caused to suffer a severe loss, and we, the members thereof, hereby extend to the bereaved widow our sincere sympathy.

*Resolved*, That these resolutions be entered on the minutes of this society and that an engraved copy of the same be transmitted to the bereaved Mrs. Theodore Menges as a mark of our respect.

FRANK N. BROWN,  
A. H. PECK,  
H. ALFRED GUNTHER.

June 5, 1900.

*Committee.*

#### RESOLUTIONS ON DR. MENGES' DEATH BY HIS STUDENTS.

WHEREAS, God in his infinite wisdom has removed from our midst, and from the work in which he was becoming so great a force, our friend and teacher, Dr. Theodore Menges; and

WHEREAS, We, the students of Northwestern University Dental School, realize the great loss that is sustained thereby; be it

*Resolved*, That we bow in humble submission to the will of Almighty God, and hereby express our heartfelt sympathy to the bereaved wife and sorrowing friends, and to the faculty of Northwestern University Dental School, of which he was a valued and honored member; and be it

*Resolved*, That each one having lost a personal friend, we express our appreciation of his untiring efforts and devotion to the upbuilding of the dental profession at large, to the Northwestern University Dental School, and to the individual interests of its students; and be it further

*Resolved*, That a copy of these resolutions be presented to Mrs. Alice Menges, to the faculty of said institution, and that copies be sent to the leading dental journals for publication.

ELMORE T. HULL,  
WM. A. KAAKE,  
L. J. SCHNEIDER,  
EUGENE MAGINNIS,

CHICAGO, June 2, 1900.

*Committee.*

#### RESOLUTIONS ON DEATH OF DR. N. W. HAWES BY BOSTON SOCIETY FOR DENTAL IMPROVEMENT.

Dr. Nathaniel Ware Hawes, one of the earliest active members of this society, died at Wrentham, Mass., April 1, 1900. He was an honored member of this society, and had practiced in Boston since 1865. He was born in Wrentham Aug. 12, 1838, was educated at Day's Academy in that place, and studied his profession with Dr. Geo. E. Hawes of New York. He graduated from the Harvard Dental School, and for a time practiced in Wrentham and Foxboro. He was a demonstrator in operative dentistry, and was afterward appointed assistant professor in the same chair in the school from which he graduated. Dr. Hawes contributed valuable papers to the literature of his profession, and was prominent in Masonic circles as well as in public affairs in his native town. He was a man of great generosity and unlimited geniality of disposition. His unbounded hospitality was best known to us by the delightful outings that we had with him in his beautiful home. We shall miss his familiar face and the hearty grasp of his hand.

WHEREAS, It has pleased our Heavenly Father to take from us our honored member, Dr. Hawes, therefore be it

*Resolved*, That we, the Boston Society for Dental Improvement, desire to place upon record our high appreciation of his professional standing; that we mourn his death as a personal as well as a professional loss, and desire to testify to our admiration of his efforts given at all times for the advancement of his profession.

*Resolved*, That a copy of these resolutions be sent to his family, that they be spread upon the minutes of our society, and that a copy be sent to the professional journals.

H. S. DRAPER, Sec.

Boston, May 15, 1900.

R. R. ANDREWS, }  
F. M. ROBINSON, } Committee.

#### RESOLUTIONS BY CHICAGO DENTAL SOCIETY ON DEATH OF DR. CUSHING.

It has come to the notice of this society that our beloved friend and fellow-practitioner, Geo. H. Cushing, one of the founders of this organization, departed this life May 25, 1900, at Los Angeles, Cal.; therefore, be it

*Resolved*, That we mourn his loss as personal, because every member of the society knew him and loved him as a friend, counselor and guide. This is no ordinary expression from a committee appointed to draw a memorial, but one where every member feels that it is a personal loss to no longer see and feel the presence of one much loved; be it further



*Resolved*, That in Dr. Cushing's death we mourn the loss of one who was in every sense an inspiration to do one's best in all the complex phases of life's duties. He was monitor, teacher and helper in all emergencies. His life was devoted to his profession in a sense little understood by the thoughtless, and his influence for good was far reaching and always to be relied upon. We feel in this feeble tribute to the vast labors he propounded for forty years that we fall short in our estimation of them, because no one was more stanch in his devotion to private or public duties than our departed friend. He had his faults, but they were so obscured by his noble and gentle nature that few knew of them, so that they must lie in an oblivion so profound that only his most bitter enemies may recall them. For us, he was a pattern of the kindly, professional gentleman and devoted friend. We extend to his family our condolence and this expression of our sorrow, and we will all go to his last resting place feeling that life is but a brief day, and shall soon meet him again in the near future, where all is peace and serenity.

*Resolved*, That a copy of this tribute be sent to the family of the deceased and to the dental journals for publication.

A. W. HARLAN,  
TRUMAN W. BROPHY,  
JOSEPH W. WASSALL,  
*Committee.*

#### MISSOURI STATE DENTAL ASSOCIATION.

The thirty-sixth annual meeting of this association will be held at Louisiana, Mo., July 10-18, 1900. A cordial invitation is extended to all reputable dentists to be present and participate in the proceedings and become members of the association. All railroads in the state have granted a one and one-third fare on the certificate plan. The Palmer House rates are \$1.50 and \$3 per day.

Essays and discussions: 1. Hon. Champ Clark, "Address of Welcome." 2. W. L. Reed, "President's Address." Discussion opened by F. M. Fulkerson, F. A. Achelpohl. 3. W. H. DeFord, Cedar Rapids, Iowa, "Necrosis Involving the Alveolar Process, Superior Maxillary, Nasal and Palate Bones, Resulting from Maltreatment of the Alveolar Abscess." Discussion opened by J. E. Cravens, Indianapolis, A. M. Tuft. 4. J. B. Chaffee, "Things I Have Noticed and Other Things." Discussion opened by W. M. Carter, J. B. McBride. 5. Ira B. Crissman, Chicago, "Relation of Dental Colleges to the Profession and General Public." Discussion opened by D. R. Stubblefield; Nashville, E. N. LaVeine. 6. Harry M. Hill, "The Material Porcelain." Discussion opened by C. H. Darby, D. O. M. LeCron. 7. H. E. Horn, De Soto, "Finished Dentistry." Discussion opened by Geo. A. Bowman, Geo. H. Belding, Calmar, Iowa. 8. M. D. Haunsfar, "Bacteriology and Pathology, their Relation." Discussion opened by W. H. DeFord, H. Prinz. 9. John G. Harper, "Incidents in Practice." Discussion opened by T. W. Pritchett, Whitehall, Ill.; R. J. Winn. 10. H. H. Sullivan, "Openfaced Gold Crowns." Discussion opened by W. N. Conrad, E. G. Simmons. 11.

R. C. Brophy, Chicago, "The Universal Tooth." Discussion opened by W. E. Tucker, W. F. Lawrenz. 12. Chas. L. Van Fossen, subject to be announced. Discussion opened by Ira B. Crissman, Chicago; W. W. Cleveland. 13. C. D. Lukens, "Lantern Lecture on Orthodontia." Discussion opened by J. E. Hinkins, Chicago; Geo. A. McMillen, Alton, Ill. 14. D. J. McMillen, Kansas City, "Preparation of Cavities and Fillings with Noncohesive and Cohesive Gold Foil," with illustrations. Discussion opened by B. Q. Stevens, M. R. Windhorst. 15. J. T. Fry, subject to be announced. Discussion opened by N. H. Gaines, P. H. Eisloeffel. 16. D. F. Orr, Liberty, "Questions on Methods and Practice." Discussion opened by E. E. Shetluek, W. W. Birkhead.

## CLINICS—SECOND DAY.

1. J. E. Cravens, Alveolar Periostitis. 2. J. E. Hinkins, Contour moss fiber gold filling. 3. D. R. Stubblefield, Operative and prosthetic technica. 4. R. C. Brophy, Table clinic, Dentenax slotted teeth. 5. M. R. Windhorst, Filling with new process gold foil. Demonstrating mechanical mallet. 6. T. W. Pritchett, Contour amalgam fillings in molars and bicusps. 7. F. F. Fletcher, Table clinic—post anchorage for pulpless teeth, in bridge work. 8. J. W. Hull, Immediate pulp extirpation without cataphoresis. 9. Geo. H. Belding, Gold filling, using hand mallet. 10. W. W. Cleveland, Swaged metal plate from plaster model. 11. Clinton B. Helm, Gold filling, using Bonwill mallet. 12. D. O. M. LeCron, Table clinic—porcelain inlay, crown and bridge work. 13. D. J. McMillen, Combination cohesive and noncohesive gold filling. 14. W. W. Birkhead, Pyorrhea. 15. H. H. Sullivan, Open face gold crowns. 16. W. L. Bridgeford, Contour gold filling. 17. John G. Harper, Method of swaging backing for porcelain-faced crowns. 18. E. W. Stevens, Corners and fillings from gold plate for incisors and cuspids. 19. J. L. Clark, Bridge for tilting molars.

## CLINICS—THIRD DAY.

20. Ira B. Crissman, De Trey's crystal gold filling in labial cavity. 21. W. F. A. Schultz, Operation for necrosis resulting from abscessed antrum. 22. Geo. A. McMillen, Table clinic—practical crown work. 23. J. S. Letord, Demonstrating working qualities of Eoff's gold for filling. 24. N. H. Gaines, Treatment of exposed pulp and filling with cement. 25. Chas. L. Van Fossen, Removable facings for crown and bridge work. 26. H. Prinz, Application and manipulation of mummifying paste. 27. R. J. Winn, Contour gold fillings, No. 4 foil, heavy mallet. 28. W. W. Flora, Swage metal plate over plaster cast. 29. J. C. Pasqueth, Gold filling, gingival cavity, labial surface. 30. W. F. Lawrenz, Table clinic—the Goslee system of porcelain crown and bridge work. 31. S. C. A. Rubey, Noncohesive and cohesive gold foil in approximal cavity. 32. C. D. Lukens, Orthodontia. 33. E. G. Simmons, Method of making open-faced gold crown. 34. M. R. Windhorst, A rapid system of bookkeeping—modification of card system. 35. A. G. Johnson, Cleavage of enamel preparatory to crowning, using instruments of clinician's own design. 36. C. H. Williams, Table clinic—rapid method, making perfect fitting open face gold crown for bridge work. 37. D. J. McMillen, Extracting roots with elevator. B. L. THORPE, Cor. Sec., St. Louis.

## News Summary.

ISAAC N. WELCH, a dentist at Eaton, O., died June 17, 1900.

NEIL DOWNEY, 57 years old, a dentist of Minneapolis, died June 6, 1900.

J. E. HEWLETT, a dentist of St. Joe, Mo., died of heart failure May 28, 1900.

WM. H. FRYE, 44 years old, a dentist at Keyser, W. Va., died June 17, 1900.

F. H. KENNEDY, 23 years old, a dentist of Springfield, Mass., died May 28, 1900.

J. B. BRITAIN, sixty-one years of age, a dentist of Wilkesbarre, Pa., died June 15, 1900.

J. P. LOWE, a dentist of Belleville, O., received fatal injuries in a runaway June 6, 1900.

JAS. L. NEWMAN, SR., who had practiced dentistry in Chicago since 1868, died June 14, 1900.

G. R. CHAMBERS, 60 years old, a dentist of Vineland, N. J., died of apoplexy June 4, 1900.

VETERINARY DENTISTRY.—A school for the teaching of this practice has been organized in Oregon.

LAWRENCE FINIGAN, 53 years old, a dentist at San Jose, Cal., died June 20, 1900, from heart disease.

Z. C. KELLEY was fined \$50 in Lynn, Mass., June 7 for practicing dentistry without a certificate.

J. J. GILLANE, a dentist of Chicago, was shot and perhaps mortally wounded by footpads June 5, 1900.

UNIVERSITY OF MINNESOTA, COLLEGE OF DENTISTRY, held its twelfth annual commencement exercises June 7, 1900, and graduated thirty-six students.

UNIVERSITY OF SOUTHERN CALIFORNIA, COLLEGE OF DENTISTRY, held its commencement exercises June 13, 1900, at Los Angeles, Cal., and graduated eleven students.

REVERSE THE DAM.—When the dentist finally took the rubber dam out of the patient's mouth the latter remarked that hereafter the name of the article should be reversed.

WESTERN RESERVE UNIVERSITY, DENTAL DEPARTMENT, held its annual commencement exercises June 14, 1900, at Cleveland, and conferred degrees upon thirty-two graduates.

DANGERS FROM MALPRACTICE.—A dentist in Minneapolis has been sued for \$3070. by a patient who claims that his jawbone was permanently injured through extraction of a tooth.

PAINFUL EXTRACTION (for the dentist).—A Chicago dentist extracted a tooth for a man and it caused him so much pain that he jumped from the chair and threw the dentist down stairs.

**J. H. KIDDER**, 75 years old, and for fifty years a practicing dentist in Lawrence, Mass., died June 6, 1900.

**H. L. MUNDY**, 40 years old, a dentist of Kansas City, Mo., committed suicide June 1, 1900. He had been partially insane for several years.

**FORMALDEHYD IN MILK.**—The Chicago health commissioner is after milk men who use formaldehyd as a preservative, because he claims that its use will greatly increase infantile mortality.

**LOUISIANA DENTAL BILL FAVORED.**—This measure, which has just passed the Louisiana House of Representatives and is now before the Senate, is favored by almost every dentist in the state.

**SOUND TEETH INSURE WORK.**—A match factory at Crawfordsville, Ind., will start its plant in a week or two, and is now examining women for positions. Only those who have perfect teeth will be employed.

**EXPENSIVE TEETH.**—Miss Lena C. Bourbeau was fined \$50 June 2 in Brockton, Mass., for practicing dentistry without being registered. A set of teeth which she made will now cost her more than they did the patient.

**DELTA SIGMA DELTA FRATERNITY MEET.**—Detroit members of this organization, and about thirty from outside cities, were entertained May 19 by the Detroit chapter. Fifty plates were set for the annual banquet in the evening.

**ROCHESTER DENTAL SOCIETY** at its regular monthly meeting, June 19, 1900, elected the following officers for the ensuing year; Pres., W. W. Belcher; V. P., W. W. Smith; Sec. and Treas., F. W. Proseus; Librarian, Dr. Goode.

**J. H. KENNERLY**, who has for some time been connected with the Marion-Sims College of Dentistry, has resigned and been elected to the Chair of Prosthetic Dentistry and Secretary of the Faculty of Washington University Dental Department.

**DENTIST A QUICK SHOT.**—Edward Sellers, a dentist at Brookwood, Ala., killed a miner at that place June 28. There was a dispute over the dentist's bill, and the miner drew a gun, but the dentist shot twice before the other man could raise his revolver.

**SPECIAL TRAIN TO OLD POINT COMFORT** leaves Central Station, 12th street and Park row, Chicago, Sunday, July 8, at 9 a. m., on the Big Four—Chesapeake and Ohio Railroads. Secure your berth if you have not already done so. Fare for round trip, \$26.67.

**TOOTHACHE REMEDY IN 1800.**—A very efficacious practice at that date was to crush a lady-bug between the thumb and forefinger and then to rub the finger on the gum and tooth. Freshly crushed bugs were recommended.—*S. H. Corney, Jr., in Med. Age.*

**PAINLESS SHIRT WAISTS.**—On one end of a building in Boston is the sign "Ladies' Shirt Waists," and on the other end "Dental Parlors." Between the two, but much nearer the "shirt waists" than the "parlors," we read "All Work Absolutely Painless."

**BOARDING PLACE FOR VEGETARIANS.**—You don't make a graveyard out of your stomach if you are a scholar and a gentleman; the choicest vegetarian fare scientifically prepared, \$4.50 to \$5 per week, at Mrs. —, — Ave.—*Advertisement in Chicago paper.*

**ODONTOLOGICAL SOCIETY OF NATIONAL UNIVERSITY, WASHINGTON, D. C.,** at its annual meeting June 18, 1900, elected the following officers: Pres., C. W. Scott; V. P., L. F. Davis; Sec., W. D. Monroe; Treas., W. W. Trail; Librarian, A. P. Bain; Essayist, E. E. Rankin.

**ANTI-NOISE CRUSADE IN CHICAGO.**—A vigorous war is being waged against unnecessary noises by Chicago citizens, headed by Dr. S. M. Jones. Chicago is not only the dirtiest, but also the noisiest city in the United States to-day, and we trust the efforts of these gentlemen will bear fruit.

**NEWSPAPER ADVERTISING.**—The San Francisco *Examiner* of April 29 contains an article by A. C. Hart, "P.H.B., M.D., D.D.S., Prof. of Chemistry, Dental Lecturer, etc.," on the teeth and their care. Accompanying the article is a photograph of a dentist's office, and the man operating at the chair is presumably the author of the newspaper essay.

**WOMEN DEADBEATS OUTNUMBER THE MEN.**—Members of the Janesville, Wis., Dental Society are making out a list of local residents who are willing to have dental work done but who do not care to pay for it. These will be placed on a special deadbeat list, and same furnished to every member of the society. It appears that on the list the women are in the majority.

**AMATEUR DENTIST IN TROUBLE.**—A Chicago dental student was arrested for disorderly conduct, and while he was waiting for trial in the police court the city prosecutor complained of toothache. The student thought that if he could relieve the sufferer the fine would be remitted, so he attempted to pull the tooth but succeeded in taking out only half of it. The prosecutor saw that the student was fined, and then rushed out in search of a more competent dentist.

**DENTISTS SKIN FARMERS.**—Several agriculturists in Iowa and Nebraska have been living on soup and gruel since last January. At that time the "Omaha Dental Company" reached Magnolia, Iowa, and offered to extract all old teeth and put in a full set for \$5. Many farmers paid \$5 and allowed the operators to pull all their teeth. Measurements were carefully taken of each mouth, and the "company" promised to return and deliver the teeth on the 15th of April, but they have not made good as yet.

**DIPLOMA MILL RAIDED.**—Federal authority interposed June 15 to stop what is asserted to be one of the most flagrant of Chicago's diploma mills. The officers of the Metropolitan Medical College were arrested on the charge of using the mails to defraud. They are: Jas. Armstrong, President; J. H. Randall, Vice-President; Thos. Armstrong, Secretary; C. M. Hovey, Attorney. The Chicago postoffice has received word from Washington to withhold all mail addressed to any of the four defendants or to the institution with which they are connected. The defendants have been released on bail, but are held to the federal grand jury.

**AWE INSPIRING.**—Biggs: There goes a man who is approached with fear and trembling by all who have dealings with him.

Boggs: Ah, a criminal judge, I presume?

Biggs: No, a dentist.

**INGRATITUDE.**—A woman at Council Bluffs, Iowa, recently attempted to commit suicide by swallowing poison. She was saved by the kindly assistance of a neighboring druggist. She now threatens to bring suit against the druggist on the grounds that his druggist's license does not permit him to practice medicine.—*West. Med. Rev.*

**THE LUNGS.**—By Tommy: "When we breth the longs moves around to all parts of the bodie the longs is too little round holes in the had we breth threw them we hat better take care of the longs. If they was to decay on us we would not be so very helthy persons without no longs is apt to be peevish and missable in a sickly condition."—*Fuck.*

**HYPERTROPHIED GUM.**—When hypertrophied gum presents between teeth and overlapping edge of cavity to be filled, ethylate of sodium, applied with a pellet of cotton, will destroy the tissue, melting it into a gelatinous mass. It comes in the form of powder, which dissolved in alcohol forms a red, syrupy liquid, exceedingly corrosive.—*S. George Elliott, Dental Review.*

**TERRIBLE WARNING.**—There was a man who was too stingy to subscribe for his home paper, so sent his little son to a neighbor to borrow one. As the boy was going home he fell down and broke his leg. The father heard his cries and ran out to see what was the matter, but slipped and fell, dislocating his knee and tearing the bosom out of his ten-dollar pantaloons. His wife ran to his assistance, leaving a two-year-old baby on the floor. The baby crawled out and fell down the well, and while the mother was fishing the baby out the house caught fire and was totally destroyed. Moral: Now is the time to subscribe.—*Cambridge (Ohio) Sun.*

**LIPS AS INDICATIVE OF CHARACTER.**—According to *Gallard's Med. Jour.* Dr. A. Bloch, the French anthropologist, attacks the theory that thick lips mark sensuality, while thin and delicate lips denote spirituality, firmness and elevated character. In a recent paper the scientist states that the shape, size and color of the lips are purely race characteristics, and that in the hybrid peoples of Europe and America, where there has been such a general intermingling of races, a child may well inherit from not very remote ancestors lip forms that completely belie the actual character of the child, as indicated by the lip theory. Dr. Bloch's investigations satisfy him that really thick lips in the white races are always anomalies or freaks of nature.

**PRENATAL DAMAGES.**—The Supreme Court of Illinois has recently handed down a decision in a peculiar case. It was that of an infant who claimed damages for a deformity alleged to have resulted from injury to the mother before its birth. The mother, while pregnant, was injured in an elevator accident at St. Luke's Hospital, Chicago, her left leg being caught and crushed. When the child was born his left leg was deformed. The hospital authorities settled with the woman for her injuries, and then she brought

suit in the child's name for \$50,000 damages for the deformity, which it was claimed was due to the same accident. The court dismissed the suit on the ground that at the time of the accident the child could not be credited as a separate being, capable of sustaining an action independent of the mother.

**HICCOUGH.**—J. Noir has had several successes in treating persistent hiccough by Laborde's plan. In one, a very nervous girl of 6½, who had had violent hiccough for six hours and was so much exhausted that her relatives had given her up for dead, traction on the tongue for about a minute and a half calmed the malady as by magic, and it did not recur. In another case, where the patient was diabetic, tuberculous and cachectic, the hiccough had been severe for several days and was evidently toxic in origin. It had resisted all forms of medicinal treatment and absolutely prevented sleep. Traction on the tongue, continued for about two minutes, completely arrested the spasm; it, however, reappeared several days later, but again ceased on the patient practicing the method on himself. The great advantage is its simplicity, and that it does not require any electrical or other apparatus —*Brit. Med. Jour.*

**AUSTRALIA BOTHERED BY BOGUS COLLEGES.**—A number of chemists and dentists in Sydney have recently received a typewritten circular emanating from the "Special Australian representative" of an American institution which is prepared to distribute dental degrees freely. The following is a copy of the circular: "Dear Sir.—I have pleasure in informing you that I have been instructed by the faculty of one of the leading medical and dental colleges in the United States, who desire to extend their sphere of usefulness throughout Australia, to intimate to leading dentists in these colonies that they are prepared to enroll them 'ad eundem gradem' in their college as doctors of dental surgery. Should you care to join their roll, kindly notify or call upon me as soon as possible, and oblige, yours faithfully, ——Special Australian Representative."

Dr. A. Burne of Sydney is a member of the International Committee on Colleges, etc., and is doing his best to check the machinations of these disreputable diploma mills in his country.

**REMOVAL OF HALF OF THE TONGUE WITH REMOVAL OF THE TONSIL.**—Dr. Curtis presented a man of sixty years who had been admitted to hospital on Dec. 15, 1899. At that time he had been suffering great pain; the saliva had been dribbling from the mouth, and there had been a deep ulcer at the tonsil extending over to root of tongue. However, the mouth could be freely opened, showing that there was no involvement of the pterygo maxillary parts. The operation had been done on Dec. 7, beginning with the Mikulicz method. The vertical incision had also been made over the carotid. After separating the periosteum the ramus had been divided, and twisted out of its socket without any division of the soft parts above. This operation had always given him free access to the tonsil and perfect control of hemorrhage. With the finger in the mouth hemorrhage could be stopped entirely, or the bleeding point could be turned out and secured. This method of operating, particularly in elderly people, was far better than by dividing the jaw. The growth

had been cut away, including the entire tonsil and wall of the pharynx. The tongue had been found extensively involved, and hence it had been removed by the method of splitting and dividing it at the root. The man had made a rather slow recovery, but the result was good. This method of operating seemed to him far better than the splitting of the cheek or dividing the jaw vertically as was done so often.—*Med. Rec.*, April, 1900.

**CAN BRUSHES BE STERILIZED?**—A. Winternitz: Tests with a large number of brushes showed that boiling them for ten minutes in a 1 per cent solution of soda, and keeping them afterward in a 1 per 1000 solution of sublimate, sterilized them in respect to the pathogenic germs usually encountered, with complete success and without injury to the brush. Unusually resistant spores were not destroyed.—*Jour. A. M. A.*

**PRESERVATION OF RUBBER ARTICLES.**—Professor Krolkowski publishes in a Polish paper the results of extensive tests which show that the best method of keeping rubber articles is in a one per cent solution of formal or zinc chlorid or a concentrated solution of boric acid. Red rubber keeps better than black, other conditions being equal. Rubber articles should never be left exposed to the air or to the action of cold.—*Jour. A. M. A.*

**CONSTRUCTION OF CONTRACT TO CURE PHYSICIAN.**—A physician who had been suffering from a sore on his face which he himself could not cure, called on another doctor, of whom he had heard as a specialist in several diseases, for the purpose of being treated. The specialist termed the affection lupus or lupus cancer. But whether it was or not is here immaterial. Taking the specialist's version of the contract entered into between them, it was that, in the event of a cure, the other should give him either a certificate of his skill and proficiency as a specialist in the treatment of the trouble from which his patient had suffered or \$5,000 in cash. A cure was effected, and the specialist had recourse to the law to enforce his demands. A trial resulted in a judgment for the defendant, the judge holding that the \$5,000 which the specialist testified was to be paid if the certificate was not given was a penalty, and therefore not recoverable. But, in so doing, the Supreme Court of Pennsylvania says that the court below must have lost sight of the controlling facts. The Supreme Court says that the defendant was himself a physician, seeking cure for his ailment at the hands of another. He was not the ordinary patient calling on a specialist, but a member himself of the medical profession, knowing, according to his own testimony, what his trouble was, and presumed to know what would be a proper charge for the services to be rendered—what he himself might ask. And no matter what its judgment might be under different conditions, the Supreme Court declares it cannot approve the view that the \$5,000 was a penalty. So it holds that if the specialist is to be believed, it was an alternative mode of payment agreed on by the parties, capable of intelligently entering into a contract. In consequence of which it reverses the judgment above mentioned, suggesting that the case, *Burgoon vs. Johnson*, ought to be remitted for another trial, that the court may instruct the jury that, if specialist's testimony is to be believed, the defendant must pay the sum agreed on for the relief sought and found.—*Jour. A. M. A.*



## Obituary.



THEODORE MENGES, B.S., A.M., D.D.S.

Dr. Theodore Menges died in Chicago June 1, 1900, of appendicitis, after an illness of less than a week. His remains were cremated at Graceland and the ashes sent to Bristol, Ind., for burial. He leaves no family except his wife, who has been constantly with him in his school work and who has afforded him great assistance.

Dr. Menges was born May 2, 1854, on a farm near Bristol, Ind., and spent his boyhood there, finishing the common school course at an early age. He was ambitious and studious, and at sixteen he taught school in the home district, continuing for five years. During this time his summers were spent at the Northern Indiana Normal School, where he earned the degree of B.S. and subsequently that of A.M. When these first five years were over he took charge of a larger school at Bloomfield, Ind., and shortly afterward organized a successful normal school at the same place, all of which occupied

his time for seven years. In 1879 he was married to Miss Alice Brown, one of the teachers in his school. During the latter part of this school work he studied law, and when he gave up teaching was admitted to the bar, and started practice at Bloomfield. About this time, or in 1881, he took the first year's course in the Jefferson Medical College at Louisville, Ky., but returned at once to the law. He practiced same, however, but two years at Bloomfield, then going west to Kimball, Neb., and later to Cheyenne, Wyo., where he continued the practice of law and took up also real estate and mining speculations, for which he developed a taste and much skill. He was soon in possession of a comfortable fortune, but when the collapse of the boom in western lands and mining property came it looked as if he were ruined. He saved something from the wreck, however, and came to Chicago in 1891. Then both he and Mrs. Menges entered the American College of Dental Surgery, and both received the degree of D.D.S. His early training had given Dr. Menges a taste for school work, so that he took up eagerly dental college affairs, and after his graduation became secretary of the school. With characteristic energy he put new blood and life into the college, and from the time of his connection its classes grew larger, the instruction was greatly improved, and the school put in the first rank of dental educational institutions. In 1896 the American College was consolidated with the Northwestern University Dental School, and Dr. Menges was continued in the secretaryship. He built up a library, museum and reading room, all of which for a dental school were most creditable, and he greatly improved the whole equipment, teaching force, etc., of the institution.

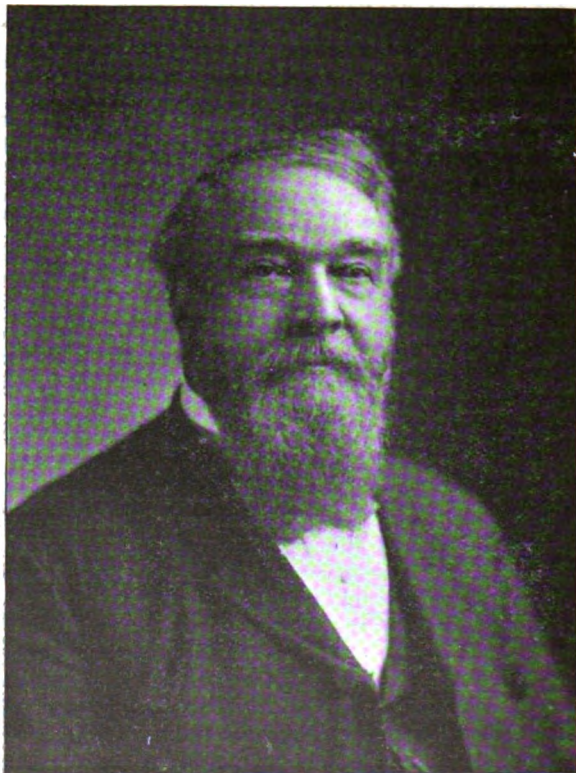
In his death higher dental education has lost a powerful advocate, since for some time past he was earnestly studying the subject of dental training with the hope that eventually the question might be better understood among both teachers and the profession. His greatest ambition was to effect a radical improvement in dental education in all schools, and if he had lived this would undoubtedly have been accomplished, as he was one who was deterred by no obstacles if he thought his course the right one.

He was an active member of the Chicago Dental Society, Odontographic Dental Society, Chicago Dental Club, Illinois State Dental Society, Dental Protective Association, National School of Dental Technics, National Dental Association, and the National Association of Dental Faculties, in which latter organization he made the greatest impression upon dentistry. For several years he was chairman of the executive committee of the last named organization, and in this work he was tireless, tactful and progressive, always working for higher ideals in dental educational work. The man's power is shown by the fact that within nine years from the time he began the study of dentistry he had become a national figure in its educational affairs.

In private life Dr. Menges was most simple and unostentatious, having a great aversion to formality of any sort. He possessed strong convictions and a wonderful stock of nervous energy, both of which made him a formidable opponent, but withal he had a great deal of liberality and was ever ready to aid anyone in trouble. He was an interesting and forceful speaker, and this trait showed most advantageously when he had laid aside business

cares and worries to enjoy himself with a few friends, who always appreciated his companionship. His executive ability and power as an organizer were not excelled by any member of the profession. He was an earnest student and teacher, a devoted husband and a Christian gentleman, and his death is mourned by a host of friends. Even those who did not agree with all his views could not help but admire the man's earnestness and power.

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GEO. H. CUSHING, M.D., D.D.S.

Dr. Geo. H. Cushing died at his home near Los Angeles, Cal., May 25, 1900, after an illness of only three or four days. He attended to his college duties on Monday morning, but went home sick in the afternoon and was very ill until Friday morning, when he seemed to recover, but about 11 o'clock a. m. he was taken with convulsions and died in less than an hour. In accordance with his wishes his remains were cremated and forwarded to Chicago. The interment was in the family lot at Graceland on June 18, and was attended by many of his Chicago friends in the profession. He leaves a

widow, two sons and two daughters. He was married twice, his first wife dying in 1808.

Dr. Cushing was born May 11, 1829, at Providence, R. I., and began the study of dentistry with the late N. A. Fisher, M.D., of that city. Shortly after he began practice in Connecticut and in 1846 at Bristol, R. I. In 1849 he sailed around the Horn and reached San Francisco in 1850. After spending several years in mining, practicing dentistry, etc., he returned to Rhode Island in 1856. In 1857 he came to Chicago, and was associated with Quinlan Bros., dentists. After the retirement of Chas. H. he formed a partnership with John Quinlan. After eleven years' association with these gentlemen he began practice for himself, and continued until about two years ago, when on account of failing health he moved to California, where he entered upon college work in the dental department of the Southern California University.

Up to the time of the Chicago fire in 1871 Dr. Cushing had one of the most lucrative practices in Chicago, but the financial loss resulting from the terrible conflagration so discouraged him that he never fully recovered from the shock. He always took the greatest interest in society work and was elected twice president of the Chicago Dental Society, twice president of the Illinois State Society, president of the Mississippi Valley Dental Association, of which organization he was a charter member; also president of the Chicago Odontological, American Dental Association, Faculties' Association, Examiners' Association, and recording secretary of the American Dental Association. He was also much interested in college work and active therein.

Dr. Cushing was in many respects the most striking personality in the dental profession. He had an especial genius for organization, and many of our most progressive societies owe to him the chief inspiration for their advancement, and even for their existence. He was mainly instrumental in the organization of the Chicago Dental Society and the Illinois State Dental Society, and a notable fact connected with his association with the latter was that he never missed a meeting from the time of its organization till his removal from the state—a period of thirty-three years. This as an unparalleled record of devotion to the welfare of the profession is only typical of the man. His interest in society work never lagged, and he seemed to have an intuition as to what would most certainly further a society's welfare. He was always the chief counselor in any organized body of men with which he was connected. His long tenure of office as secretary of the American Dental Association was a fitting tribute to his worth in this respect, the honor coming to him not only from the love of his associates but because of his peculiar fitness for the office.

His service to the profession in the way of fostering society interests can not be measured by the span of a single life—it must go on as long as dental organizations exist. He helped to give direction and method to society work in the early days when direction and method were so badly needed, and when all was yet an experiment. The impress of his individuality will not soon fade away from the atmosphere of those organizations with which he was

most intimately connected, and the name of Dr. Geo. H. Cushing will be spoken with love and reverence in many a circle during their meetings year after year.

Personally, Dr. Cushing had a most delightful charm. He was in many respects a "gentleman of the old school"—minus the haughtiness which is usually supposed to go with this kind of a personage. He was affable and approachable, particularly to the younger men in the profession, and his wealth of good advice was ever available to those who choose to ask for it. He was filled with a tender compassion over the sorrows of others, and had a heart large enough to embrace the whole of humanity. To those who knew him well he was something more than an ordinary man: he was the embodiment of all that was just and generous and brave and kind. In the summing up of all that makes men great he was one of the greatest that the dental profession has ever claimed.

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# The Dental Digest.

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No. 7.

## Original Contributions.

### PORCELAIN CROWN.

BY W. H. DWIGHT, D.D.S., LE MAR, IOWA. READ BEFORE THE NORTHERN IOWA DENTAL SOCIETY, AT CLEAR LAKE, SEPT 5-8, 1899.

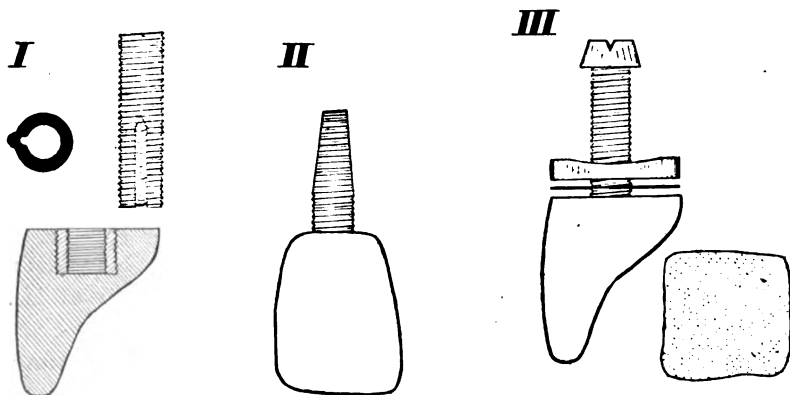
In presenting this crown and claiming so much for it, I hope to find a variety of opinions. I do not wish to say aught against any other crown, and shall not except as a comparison. I shall say the Logan is strong enough, but mine is stronger because it has a greater bearing between the porcelain and platinum. More than that, it is a better crown because it is so constructed as to allow of a more perfect adaptation to the root, is much more easily and quickly finished, and contains advantages that no other crown offers so far as I know.

I know just now the porcelain crown baked for each individual case is quite a favorite, as it no doubt should be, but taken all in all I consider this has advantages over it. In the first place, it is surely stronger being baked in one piece and going into the moulds under great pressure; and second, it can be finished while you are thinking about the other, and if the joints are not tight enough and the band not far enough out of sight when finished, just call my attention to it.

Figure 1 shows a crown without any post. The crown is baked upon the platinum tube, the post screws into the tube and is keyed to place, making it just as solid as if baked in it, but it is an advantage to have it so constructed, as I shall attempt to show. You will see by referring to these other figures that it is our intention to cap the root and screw the cap to the crown. That is true, and it contains a principle which will appeal to your better judgment. Figure 3 represents a thin slice of pure gold, Watts', the use of which will be described at the proper place. Now, that we may have a better understanding let us construct a crown in our minds. first one with a band, and then without. You all know that we

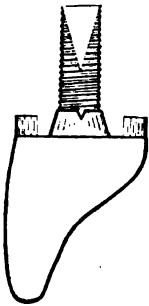
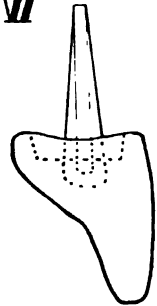
have different classes of patients ; some are anxious to have the best and are willing to pay for it, others want something cheap, and again some cases require all the strength we can possibly get. Let us suppose we are to adjust an incisor, and that the incisor is in your own mouth, and see if you will not better appreciate the advantages of its construction, for I have no doubt you want something about right. We will then set one for someone else who does not care to pay much for the operation.

The first step is to select your crown, grind the root well up under the gum margins, and remove all particles of enamel, so the band may be adjusted to fit properly. Remove the post, fit the crown to the root, and right here you will see the first point of ad-



vantage—how much easier it is to make a good joint where you have no post to contend with. Cut alike the crown and platinum tube; I find it much easier to fit a cap when I cut the surface of the root flat. After getting as good a fit as you can this way, cut a small piece of pink base-plate wax to fit the cervical portion of the crown, warm slightly and drive firmly to place with the wax between the crown and root. If there are any high places on the root or crown they can be easily seen and remedied. Now adjust the post, key it to place and grind the root so it passes freely in and out and allows the crown to stand at the same angle as before. The crown is cut just a shade shorter than it would be if we were not expecting to use a cap. The next step is to fit the band. Cut it off even with the surface of the root and solder the cap just as if making a cap for a Richmond crown, punch or drill a hole to admit the

post and drive the cap to place on the root. Now drive the crown to place, letting the post pass through the hole just punched in the cap, and if your band has been properly cut you have just as good a fit between the crown and cap as you had between the crown and root, but if it should be necessary to do a little fitting it is easily accomplished, as the case is open before you. Now pass a piece of this gold (Fig. 3) over the post, cutting it to the size of the crown at the cervical portion, and drive the crown with the gold firmly against the cap. This condenses the gold and leaves a layer of soft pure gold between the cap and crown, and makes your joints very tight. Now remove the cap and crown gently from the root and screw this nut down your post and firmly against the inside of the cap (Fig. 4).

**IV****V****VI**

You might have considered before that you had a good joint when you drove the crown against the pure gold, and so you had, but here you have a second joint and greater power and can drive this nut harder against the gold, which makes a joint that is perfectly tight and firmly fastens the cap and crown. Can you imagine a more perfect joint? And more, it gets the gold all up under the gum, and there is nothing in this process to interfere with the fit of your band, and this is what caused me to devise this method. I used to try to band a Logan; it was the best way I knew, and I often wondered why it was, in looking over crowns which had been made by other dentists, that in cases where the Logan had been banded the gold usually showed. I at first supposed it was because the root was not cut far enough under the gum margins, and in cases



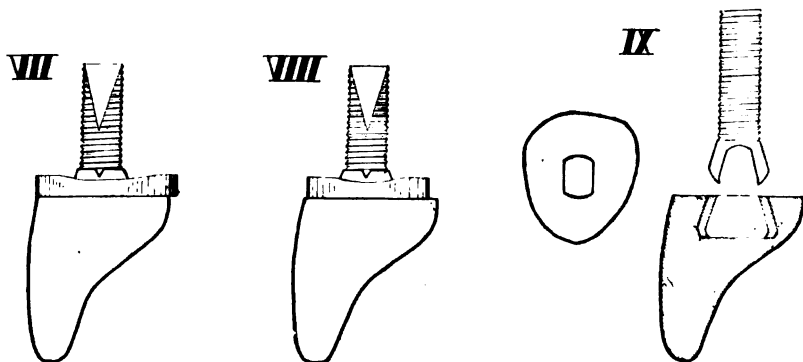
where I took special pains to put the band well out of sight those too would show in a few months, but in cases where I had made Richmond crowns the gums would hug up just as nicely as could be.

This brought me to the conclusion that it did not matter much how good a measurement you took, or how nicely you fitted a band, if you drove a crown into it and spoiled your fit you could not expect your gums to tolerate such an irritant and hug up to it. When you expect that part of the band which extends upon the root to remain stationary while you drive a crown into the part which extends beyond the root, you expect too much, as it will not do so. I think yet my conclusions were correct, but how to overcome it with the crowns at hand was what bothered me, so I made Richmond and Low crowns for awhile, but broken facings drove me from that. I used the fusible metal device and contaminated about as many bands with the metal as any one, and then had to let the gold extend down on the crown in view unless the root was cut off farther up than it should be. So I started making the cap as we have in Figs. 3 and 4, and using the Logan I would fill this space, Fig. 6, with soft gold foil, filling it quite full of course, and condensing it by driving firmly against the cap. I would then remove the cap and crown from the root, wrap the post and crown in asbestos paper, hold it in the flame and solder it at the joint between the cap and post with 18k. solder. This made a very good crown, but I would occasionally check one, and it took quite an extra amount of time, so I devised the one I have just described. I waited several years and looked over every dental journal advertisement, hoping to find what I wanted, but it came not so. I have had molds made just for the sake of having what I wanted, and I feel when I use them like a good German friend of mine who is very proud of his grown up family. He said to me in speaking of them: "Yes, they gives me lots of good feelings."

But we have not set the crown for the other fellow, so we must return to work. If we are not to use a cap we shall not have any need for the nut, Fig. 4. The root will be ground and fitted as in Fig. 5, after Ottolengui's method, and when properly fitted add a layer of gold, Fig. 3, trim it off to fit the cervical portion of the crown, fill the root with cement and drive firmly to place. This gives you a joint without any cement, as the gold presses it out as

condensed. This gives you a crown and an adaptation far superior to any way of setting a plain Logan. The fact that this crown has no space as has the Logan, Fig. 6, makes it much easier and better to adjust. It is claimed that this space is an advantage, because it allows for an additional amount of cement. Now if any dentist will look fairly and squarely at this point he will see that it does not back the claim. The space no doubt makes it easier to grind and fit, having the post baked in, but in this crown under consideration you will do your grinding when the pin is not in position, cutting alike the platinum tube and tooth, which may be cut at any angle as easily as flat, and after fitting all necessary there will still be platinum enough left for strength.

If you have something inflammable the farther you keep it



from fire the safer, and if you have something soluble the farther you keep it from its solvent the better. Wouldn't you rather have less cement and have it better protected? If plenty of cement is such an advantage, why not leave room between band and tooth when making a band or a gold crown? Do you do so? No, quite to the contrary, you make the bands fit so as to have just as little cement as possible. Let me tell you it is the cement in the root-canal and not on the surface of the root that holds the crown.

Now if you compare the Logan set plain with the one just set without a band, don't you plainly see how much better protected the cement is in the tooth that has about  $\frac{1}{8}$ th of an inch of surface tightly filled with a pure mossy gold between it and the fluids of the mouth? I have, however, no desire to dwell on any crown without a band; personally I hope every one will be set with a cap, though

here it is with a wide range of adaptation. You can set it without a cap and make a crown far ahead of anything so far offered, or with a cap and have a very satisfactory operation. Imagine how much moisture can pass through between the cap and tooth, and again how much can pass between the cap and nut, also notice how much more firmly attached your crown is to the root by having your cap firmly attached to the crown.

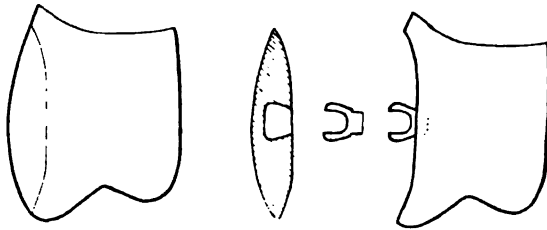
The tooth is baked on to this tube which is threaded outside as well as inside, Fig. 1, and the post is screwed into and keyed to the tube. This gives you a fused joint between the tube and crown and offers an additional amount of attachment to what you can get in any crown, consequently additional strength. Keying the post to the tube gives every advantage of a rigid post. It may be cut off, flattened or squared to fit the case. The tube necessarily must be of platinum, but the post is of non-corrosive metal which has more strength in every way it may be tested than platinum. Platinum has not been used on account of its strength, but because of its high fusing point. The small amount of platinum used should insure a crown at a less cost, especially when platinum is worth one dollar a pennyweight, though I hesitate to say cost, as it should be the last point to consider.

Since preparing this paper a patient came in for whom I had set a Logan with a cap, filling the space in Fig. 6 with soft foil, as described before, some eight years ago. He had the misfortune to fall off a binder, when a bolt struck him on the crown and smashed it but did not injure the root. It takes no small blow to break a Logan, and I would not give much for the root if it had not been banded, but as it was it could be fixed. And that calls up still another point I have not mentioned, and did not expect to when these drawings were made. There is another good way in which a crown may be constructed, that is, as in Fig. 9. This crown and post need not be held to the construction just given, but may be made as in Fig. 9. In this you see the socket piece is larger inside than at the surface, the post has a hollow or spring end and springs into the socket as shown. When the post is cemented into the socket this space becomes filled with cement, and when hardened it prevents the arms of the post from springing together, hence becomes immovable. This could be capped, as in Figs. 3 and 4, and in case you should have occasion to repair one made in this manner you

could remove the cement inside of post, fit another crown and cement it to place without moving the cap or post, which would be no small saving of time and substance.

So far we have dealt only with strength, but there are so many points that are convenient to the operator using this crown that I do not know where to begin. How many times have you sent a plaster model to your dental depot, to be sure of getting just what you wanted, and received a selection of crowns, some all right for size and shape, except that one was just a little too small at the cervical margin to properly cover the root and make any kind of a joint; the other was just a little too large at the cervical margin to allow of a band without cutting into the space mentioned in Fig. 6.

X



This is not meant to say a word against the Logan for there we have apparently an abundance of forms, but it is true and has happened to all of you. You have found cases you could not fit simply because the Logan was not so constructed as to allow of a greater range of adaptation. In speaking of its not fitting of course I bring it to a fine point. I know there are many dentists who would slap them on and call it an operation if it did overlap or didn't cover, but it is not to this sort of operators I refer, and it is not this kind of a result we are to consider. It is not claimed that if you had just used this crown you would have received the right sized crown at the cervical margin, but it is claimed (to prove the wider range of its adaptation) that with this crown and method of applying the cap you would have been able to adjust either one and do it perfectly. If you refer to Fig. 7 you will see how perfectly it could be adjusted to the first case and have every part of the root protected,

and not have any weak point to be criticised either. Fig. 8 shows how perfectly it could be adjusted where the root is smaller than the crown that would otherwise fit the case and not cut into any space, though of course we would round this angle.

Sometimes it is very convenient to be able to correct a little irregularity in a tooth that it becomes necessary to crown. You can see by using the cap in this way how easy it is to correct a case where the tooth tips too far in or too far out of the arch or one which is rotated, without any more trouble than if it were an ordinary case, and perfectly protect the root.

I have always had trouble in adjusting a Logan to fit the first bicuspid when the roots were bifurcated and have used the Richmond bicuspid. This is a good crown and especially if you wish to attach anything to it. It requires a little more time, but not so much after you make a few, but it has one weak point and that is, if the facing should break it would be difficult to repair. This, however, would be overcome if a detachable facing were used. Fig. 10 will show the application. Here we have a facing baked upon a platinum socket piece which is larger inside than at the surface. This post you see is a spring post which springs into the socket piece in the facing and acts as its bearing. To construct a bicuspid crown with this facing, pass a post into the facing, punch a hole in a piece of backing to admit the post to the shoulder, cut the backing to the proper size and burnish it closely to the facing. Now cut out your crown (which has been previously prepared) so your facing and backing fit it closely, pry out the facing and solder the backing to place in the crown. You may now cement the facing to place, care being taken to fill the space inside of post with cement, which when hard will prevent the arms of post from springing together, making it permanently attached. This does away with exposing your facing to the heat and contraction of the metal, and is a combination which allows of an easy repair. If, for instance, one of these facings should break it would present with the socket piece attached to the post. It would then be necessary simply to pry or cut it off the post, remove the cement inside the post and cement another facing of the same number to place on the post. This principle would apply to any bridge or crown, but my paper confines me to the construction of a crown.

This may be as easily adjusted to a first bicuspid if the roots do

bifurcate ; the post may be cut to any size or length and bent into either root, and by the additional strength gained by screwing the cap to the crown there is no lack of attachment.

You can readily see after giving this crown but a glance that it does possess the advantages which I have claimed, and which I will again enumerate, viz., strength, excellence, a wider range of adaptation and an economy of time as well as money, which is a happy combination.

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### ESSENTIAL OILS IN DENTISTRY.

BY B. L. THORPE, D.D.S., ST. LOUIS, MO. READ BEFORE THE ST. LOUIS DENTAL SOCIETY, JUNE 5, 1900.

The volatile oils best adapted to the treatment of teeth are : Oil of cloves, oil of cassia, oil of cinnamon, oil of eucalyptus, oil of cajuput.

*Oil of Cloves*, distilled from cloves, the unexpelled flower of "Eugenia Aromatic"; a pale, yellowish, thin liquid, becoming darker and thicker with age and exposure, has a strong pungent odor and spicy taste; a powerful aromatic, possessing antiseptic properties, and is very penetrating. Oil of cloves is absolutely non-irritating to the soft tissues, produces no discoloration, and is a soothing agent which reduces irritation and inflammation. In the treatment of pulpless teeth this is one of the best remedies we have. It destroys septic matter, and is an ideal agent in cases of apical pericementitis, because of its penetrating power and non-irritating effect. In cases of exposed or inflamed pulp it makes a soothing dressing to allay inflammation before devitalization. This is perhaps the best of the volatile oils at our command for general use.

*Oil of Cassia*, a distillation obtained from the cinnamon bud, light yellowish in color, fragrant of odor, and thin in consistency, is the most potent of all the essential oils as an antiseptic. Dr. A. H. Peck says : "One drop of true oil of cassia will prevent development of bacteria in 2233 drops of infected broth." It is the most irritating and poisonous to the soft tissues of the mouth, and it also possesses such penetrating power as to make it an unsafe remedy in treatment of root-canals of pulpless teeth, for if forced through the apical foramen intense inflammation will follow and the patient will complain of soreness to the touch for several days. Another objection is that it discolours the dentin and enamel to a yellowish brown

color. In the treatment of pus pockets caused by pyorrhea oil of cassia is very beneficial when introduced by the drop syringe. It has a stimulating effect which excites healthy granulation of the soft parts.

*Oil of Cinnamon*, distilled from an undetermined species of cinnamon grown in China. A brownish liquid, becoming darker and thicker by age and exposure to air, having a sweetish, spicy and burning taste. The commercial oil is obtained chiefly from leaves, stems and young twigs. This oil possesses the irritating qualities akin to oil of cassia, and cannot be recommended for treatment of pulpless teeth.

In mouth washes it has a place, as in the flavoring of tooth powders and pastes.

*Ceylon Oil of Cinnamon*, a distillation from the bark of the cinnamon tree of Northern India, a pale yellowish liquid, having the characteristic odor of cinnamon, also a sweetish, burning and spicy taste. This oil is recommended by Dr. M. L. Rhein in treatment of deep-seated cavities, where the pulp is covered with a thick leathery-like layer of dentin. The loose decayed dentin is removed, the cavity sterilized with  $H_2O_2$  or some like antiseptic, then flooded with absolute alcohol and dried with hot air. The cavity is next swabbed with the oil and it is dried and driven into the tubuli with the hot air syringe. The oil thus applied destroys all remaining bacteria and practically embalms the dentin.

*Oil of Eucalyptus*, distilled from fresh leaves of eucalyptus tree, a colorless or faintly yellowish liquid, very aromatic, pungent, spicy and cooling to the taste. This oil is of especial value as a dressing for canals after the removal of a freshly devitalized pulp. It possesses a soothing and non-irritating effect, and is of value in moistening root-canals before filling with gutta-percha, as it acts as a lubricant and solvent of gutta-percha and makes its introduction easy. Eucalyptus is preferable to chloroform, the latter evaporating, while the oil does not and leaves the gutta-percha a solid mass. This oil is one of the many agents used that does not stain the dentin and enamel.

*Oil of Cajuput*, a thin bluish green, or, after rectification, colorless liquid, having a peculiar, disagreeable odor, and an aromatic bitter taste. The green color is due to traces of copper. This drug is an excellent internal local stimulant, but its main value in den-

tistry is for moistening root-canals before filling with gutta-percha. When the walls of a cavity or canal are moistened with this oil gutta-percha will cling tenaciously to them. The essayist has found it of especial benefit in setting porcelain or porcelain-faced crowns, by applying gutta-percha to the post, heating and fitting in the root while the root is wet. The exact amount of gutta-percha may be determined when this is accomplished. The canal should be dried and then flooded with oil of cajuput, the gutta-percha warmed, and the crown slowly and steadily forced to position. This method makes it possible to remove the crown easily by the application of heat, if the case should require.

The therapeutic action, antiseptic properties, penetrating power, and pleasant odor and taste should give the essential oils a place in our daily practice.

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### PRESIDENT'S ADDRESS.

BY A. N. FERRIS, D.D.S., WATERLOO, IOWA. READ BEFORE THE NORTHERN IOWA DENTAL SOCIETY AT CLEAR LAKE, SEPT. 5-8, 1899.

When invited to attend the first meeting and organization of this society in 1895 I did not have much faith of its success, but after reaching the meeting I realized that here was an opportunity for a good society, one which would bring under its influence younger men and those who did not attend any dental organization. At the start we had twenty-nine charter members, and now our numbers are nearly one hundred. This organization has not detracted from the state society, but rather has been an inspiration to its members, as they have become more interested in society work, and many outsiders have united with the state body who would never have done so but for our influence. The same is probably true of other societies which come up under great opposition from those already established.

I would speak of the possibilities yet in store for and to be attained by the dental profession. Dentistry is less scientific than it should be. We as a profession know too little about preventive and systemic treatment, predisposing causes, inherited or constitutional conditions. We read too little and do not study deep enough; our experiments are too meager, and we do not aim high enough. We are too careful about burning gas at night and too ambitious to administer it in the daytime; also too much interested in outside



affairs which are not intended to build us up professionally. It is easy enough to propound a theory, but same should be backed up by real facts, truths worked out by systematic and methodical experiments. "An ounce of practice is worth a ton of theory."

Is it not presumable to believe that the time is coming when there will be specialists for preventive treatment, systemic and local, to ward off diseases with which dentists have to deal, such as caries, pyorrhea, chemical erosion, calcic waste in pregnancy, hypersensitive dentin, etc.? Such a one might be called the preventive dental specialist.

It is not possible for any one man to make deep researches and experiments in all phases of dentistry. The natural life of mankind is too brief, but after one has had a thorough literary education, and a good foundation of general knowledge in dentistry such as should be given in our colleges, he can then select some special field to practice and become proficient and even expert in it, thus becoming more useful to humanity, more noted in his profession and more satisfactory to himself. To be successful in a specialty one should use care in his selection and take that for which he is naturally gifted. Specialists in dentistry are surely coming; in fact, the large cities already have them in a moderate degree. When this condition is brought about the profession will not seem so overcrowded as at the present period.

The time has come when students should be required to have diplomas from reputable literary institutions before they enter the dental college, so that they may have sufficient knowledge to carry on deep researches scientifically and intelligently. I need not comment on the greater prestige this will give us as professional men. How many of us now regret that we did not have this knowledge as a foundation. Dental instructors who are real teachers should be selected, those fitted for this special duty, and they should also take special training to fit them for the work. This may seem to you as putting the standard very high, but do not most of us feel that we did not aim high enough in life's plans, and that we could have reached higher altitudes professionally had we been better trained and less content to remain on the lower rounds of the ladder.

Finally, I would recommend that this society use its influence and concur in the suggestion offered by President De Ford of the state society in regard to state legislation; and with such earnestness that

our legislature will also require every dentist to subscribe to a code of professional ethics, and thus help down the extensive quackery which is a growing menace to our noble profession and to the community at large.

### CARELESSNESS IN DIAGNOSIS.

BY F. F. FLETCHER, D.D.S., ST. LOUIS, MO. READ BEFORE THE ST LOUIS DENTAL SOCIETY, JUNE 5, 1900.

It is well known to us all, that when a medical practitioner is called to see a case, no matter how trivial, he makes a diagnosis prior to prescribing, and same generally consists of securing the patient's version of his or her ailments, supplemented by his own examination. This may be more or less thorough, but in disorders of the stomach and the entire alimentary canal, caused by imperfections in the masticatory apparatus, the verdict is often superficial, judging from the treatment.

Facial neuralgia is another common disorder, where often the most careless diagnosis is made, and grossest ignorance of the cause manifested. When so afflicted the patient usually informs the physician that it is only a case of neuralgia. This is deemed sufficient, and a prescription given, which is in itself positive proof of the above assertion. Not one of the thirty-two teeth is examined, nor a question asked about them; they are ignored as having no more to do with the case than corns or freckles, and are as little understood by the physician as is the appendix vermiformis.

Let us see if the case should be thus carelessly treated. The trigeminus is involved; it is the largest cranial nerve arising from two roots, the one from the side of the pons varolii, the other in the medulla oblongata. From these sources it passes to a no less important center than the gasserian ganglion, from whence the superior and inferior maxillary nerves radiate and connect in one way or another with the pulp of every tooth in both arches. When the teeth are all in situ we have on an average fifty-two different apices, thirty in the superior maxilla and twenty-two in the inferior, from any one of which this nerve may become infected and this dread malady be produced. Can a single argument be brought forward in defense of this practice of ignoring fifty-two vulnerable points, and from which fully eighty per cent of the troubles of this important nerve are derived?

Now are we in a good position to criticise our brothers of the medical profession? I fear not. The process of evolution in our profession has been most rapid; inside of fifty years we have advanced from illiterate barbers, extracting teeth crudely, inserting fillings and artificial dentures in a mediocre and unsatisfactory manner, to a separate and learned body of professional men and specialists, taking our place beside the medical man, the oculist, aurist, and all the other specialists in medicine. Let us see if like the athlete we are not developing some organ or set of muscles to the detriment of others, or to be plainer still, are we not developing along the lines of rapidity in operations and money-making, dwarfing our diagnosis and prognosis, thus stifling what should be our highest aim—careful professional work, and higher scientific attainments.

Let me cite a few common cases, compare what is usually done with what a careful practitioner does or should do, and then you may draw your own conclusions. The patient from the age of four to sixteen years presents for your examination. No! in ninety-nine cases out of a hundred it is for relief, the cause generally being a first molar or the removal of a deciduous tooth. In many cases the patient has made the diagnosis and informs the dentist as to the treatment desired. The operator like a dutiful servant accepts both, obeys orders, and patient leaves the office, having furnished the brains, while the dentist contributed the brawn. This was the general practice thirty to fifty years ago, and I must confess it is not an overdrawn picture of what transpires in many offices to-day.

Compare this travesty on a profession with what takes place in the operating room of a thoroughly scientific dentist. After listening to a history of the case and the manner in which it must be treated, he begins his own diagnosis and finds a deciduous tooth the cause of trouble, just as he has been informed, but from this point onward the opinions of treatment diverge. He explains why the deciduous tooth should remain for a period, how its loss at present would affect the permanent tooth, how its absence will cause non-development of the maxilla, malocclusion of all teeth on that side of the arch, etc.

He proceeds to relieve the pain at earliest moment, and continues with his diagnosis, awaiting favorable action of his medicaments meanwhile, calls the mother's attention to the various cavities, sug-

gests proper treatment, and gives his reasons therefor. If it will strengthen his position, need of brush and its use are brought out. A deciduous tooth, retarding eruption of a permanent one, is pointed out and the reason for its removal stated. The root of a deciduous molar is observed, leaning against the first molar, causing it to discolor and break down; an interlocked tooth or other irregularities needing attention, are noted and an orthodontist suggested. The mother at once produces the stock argument, learned from general practitioners incompetent to do such work—that the patient is too young; wait awhile and the teeth will straighten themselves. This is the excuse of the busy operative dentist, and the admission in most instances of his incapacity to perform the work. These false impressions are corrected, and the mother is interested by this time, the little patient has been soothed by our competent operator's kindly ministrations, the unnatural expression, caused by pain, is giving way to the normal, giving him a chance to study the facial lines and contour, compliment the correct, point out the defective, and mention the remedy.

The patient may have any one or many of the above defects, or others which should be pointed out also, as mouth-breathing, enlarged tonsils or nasal obstructions, and the thorough man should go further and call attention to any aural or optical imperfections he might discover, knowing full well he was doing a kindness to the patient in pointing out a fault that might be easily corrected if taken in time, the importance of which was made clear for the first time. And here permit me to state, that every specialist of the eye, ear, nose and throat, as well as the M.D. and D.D.S., should be sufficiently educated as to the anatomy of the jaw and teeth and their surrounding parts, to be able to diagnose diseases and deformities and thus refer them to the proper man for treatment.

By this time the professional man's ability and ripe judgment have made their lasting impress on patient and mother, who have received perhaps more knowledge on the subject in hand than ever before, and who leave convinced that here is a man so thoroughly educated in his profession that they need never attempt to enlighten him on his specialty; one in whose hands they are safe and whose judgment will in future be implicitly relied upon.

Another class of patients present, those entering their teens and up to thirty, in other words, those requiring chiefly operative work.

First the teeth are to be cleaned, only after which a proper diagnosis can be made. It is presumed that the permanent teeth are in place, possibly excepting third molars, irregularities corrected and operative work begun. Again the professional man has a problem to solve that admits of no haste or carelessness. He does not attempt at first sitting to fill all the easy and most accessible cavities possible, and incidentally collect as many dollars as the victim can be induced to part with, judging from appearances and references; but he conscientiously studies the case; makes a careful chart of all work to be done, notes defects in that already inserted, quality of same, ascertains length of time since fillings were made, quality of caries present or immunity, tendency to pyorrhea or other diseases of the oral cavity, either present or possibly to be inherited. With this data he is ready to commence operations on a scientific basis, and from this point on his diagnosis and operations must go hand in hand.

In preparing cavity he discovers quality of structure, vulnerable points, whether in approximate cavities he must use extension for prevention or not; notes peculiarities in saliva, whether acid or alkaline, and to what degree; chooses the most suitable filling material for each cavity, and so progresses on a high plane of scientific and intelligent work, being careful to instruct his patient to use his own efforts along those lines conducive to best results. A man following this course can but gain the confidence and admiration of his patient.

The third and last is that class from middle life to old age, where our work takes on additional burdens, including restoration of lost organs and treatment of diseases in various forms. Here again true or false diagnosis leads rapidly on to success or failure. Here we are often called upon after the family physician and the neurologist have been abandoned, and if we are to be a credit to our profession we must diagnose these cases of neuralgias in their many phases, and the often chronic stomach troubles, and effect our cures by supplying lost organs that will aid, relieve and rest the digestive apparatus and remove the causes that deranged the facial nerves. In our prosthetic work the diagnosis must be extremely accurate; many cases at first glance seem to indicate bridgework. We must study the conditions of the tissues, both hard and soft, the care bestowed on mouth by patient, try to determine the prognosis by

using plate or bridge. In this connection the temperament must be carefully noted. If patient be nervous a bridge is often best if other conditions warrant, while a plate, no matter of what material or how carefully fitted, would increase nervousness and not be successful. In cases of persistent neuralgias the electric mouth-lamp will often assist us in discovering the dead pulp in a tooth otherwise perfect, thus baffling correct diagnosis, but furnishing the poisonous gases that have caused untold agony and defied detection.

Thus all can see that our sheet anchor is careful diagnosis. How many of us take the time to study cases as we should? Is it not time that we call a halt—do less and do it better? "Just as the twig is bent the tree's inclined," and if we train ourselves to diagnose carefully we will soon form the habit which will result in vastly more perfect and satisfactory work, and at the same time lead us upward to a higher professional standard and place us on a more enlightened and scientific basis.

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CORKS STEEPED IN VASELIN are an excellent substitute for glass stoppers, according to the *National Druggist*. "Acid in no way affects them and chemical fumes do not cause decay in them, neither do they become fixed by a blow or long disuse. In short, they have all the utilities of the glass without its disadvantages."

NITROUS OXID.—After giving the chemistry of the drug, Grant describes the methods of its use. The known rules in anesthesia should not be overlooked with this anesthetic. An empty stomach need not be insisted on, but it should not be distended. The sitting posture for short operations may be maintained throughout, and the head should be bent forward rather than backward, as there is less danger of the tongue falling back. All foreign substances should be removed from the mouth, such as plates, etc. A prop should be placed between the teeth. The first impression on the patient is a sweetish taste of the gas and a certain sense of oppression. In the second stage there is a tingling sensation and consciousness is lost, and the narcosis deepens into the third or anesthetic stage. The circulatory system is but little disturbed, but the respiratory is more affected and the physical indications are those of asphyxia. Then the anesthetic is profound enough for minor surgery, and the inhaler should be withdrawn and the operation performed. The hemorrhage following the use of nitrous oxid is generally venous and may be profuse an hour or more after extraction. Recovery is usually rapid. The dangers are through the respiratory function, and intensified lividity of the face, great and sudden pallor, and cessation of respiration must be regarded as symptoms thereof. The secondary effects of nitrous oxid are trivial; there is no proof of secondary serious complications.—*Jour. A. M. A.*

## Digests.

**EARLY SIGN OF TUBERCULOSIS.** Writing under the above caption, Thos. F. Harrington (*Phila. Med. Jour.*, April 28, 1900), calls attention to the fact that he has noted a dilated state of the pupils in a number of cases which subsequently showed signs of tuberculosis pulmonalis. In other words, he claims for it a place as one of the pretubercular signs. He says that it is not a state of paralyzed pupils, but rather one which seems to be in a more or less constant state of dilation, due to some irritation along the cilio-spinal region; or perhaps an irritation of the sympathetic, brought about by some blood change associated with very early tubercular infection not yet fully recognized. The writer says that he has observed this condition many times, and that almost invariably these patients afterward showed unmistakable signs of tuberculosis.

If this state of dilated pupils is really a sign of the pretubercular stage of phthisis, it will become one of the most valuable signs yet given to the profession for the recognition of any disease, for we know that if we can recognize this dread disease in its very incipency, much more can be done in the way of climatic treatment and medicinal regime than is the case when the disease is only recognized by the presence of the bacilli in the sputum or by the onset of physical signs.—*Interstate Med. Jour.*

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**DEFENSE OF THE ORGANISM.** Meltzer maintains that the prevailing opinion of bacteriologists, who regard the defense of the body against hostile germs as due exclusively to a single element, whether it be alexins or leucocytes, is neither correct nor advantageous. He believes that it is not by a single tissue or a single function, but by concentrated action of independent factors that this defense is maintained, and illustrates this by the conjunctiva, which is usually sterile, notwithstanding its constant exposure. The causes of this are the reflex closure and blinking of the eyes and the bactericidal effect of the tears; similarly the respiratory organs, which are constantly invaded, are protected by the tortuous part of the upper portion of the tract, the action of the epithelial cilia, and the thinness of the epithelial layer, admitting the bacteria

quickly to the lymph-glands, which take good care of them. Other defenses are the spincter muscles at the entrances of some cavities of the body, and such secretions as tears, saliva, mucus, etc. Two new factors, however, which he thinks assist in the work of destruction of bacteria in the body are proposed. One of these is plasmolysis. He attributes to different osmotic pressures of the fluids the important part in this function. The second new factor is the heart's impulse. A certain maximum of vibration is indispensable to all forms of life, and can not be overstepped by any one. Every species has its certain individual minimum in this respect. He thinks that the vibrations emanating from an impulse of the heart probably form the optimum of the vibration for the living cells of each individual animal. Recent experiments have shown that the vibrations communicated through the body by the heart are deleterious to extra-vascular dead blood, and the suggestion which he wishes to make is that those emanating from the heart-beat of the animal are more than a maximum for all the bacteria invading the interior of the animal body, especially in the injured state in which they are placed by the other influences of the body, for instance, by the plasmolysis. Thus, while we constantly live in a state of latent infection, as Adami calls it, it is not a foe to normal health or life, but is rather a confederate in their defense.—*Jour. A. M. A.*

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**STATEMENTS OF EXPERTS ARE ADVISORY ONLY.** This is the view taken by the Supreme Court of Missouri. For example, in the malpractice case of *Hoyberg vs. Henske*, the jury was told, in effect, that in determining the question as to whether or not the defendant exercised such skill and care of the plaintiff's broken arm as, under the law, he should have exercised, it was not bound by the opinion of expert witnesses, but had the right to disregard all or any part of such opinions as appeared to it to be unreasonable. In this instruction the supreme court says that it fails to recognize the vice which counsel sought to point out. It is the established law, as declared by this court, it goes on to state, that where experts are called to testify, their statements are not to be considered as evidence of facts, but are of an advisory nature, and they are permitted to express opinions because of the peculiar knowledge they possess. But the court continues, juries are in no wise bound to blindly accept their ideas, but, after receiving the



advice of experts, are permitted to use their own judgment in passing on the things concerning which the opinions are given, and they are necessarily permitted to disregard the testimony of such experts as may appear to them unreasonable. Were it not so, the court thinks that, because of the widely diversified notions and wholly different results arrived at by separate individuals, even when forming conclusions on the same facts and circumstances, juries would be wholly at sea, and to refuse to permit them to be their own judges of what is reasonable and what is unreasonable would operate as a failure of the purposes for which they are called in this class of cases. Nor does the court appreciate the force of the criticism that instruction under discussion was defective in that it failed to tell the jury that, in order to disregard the opinions of the experts presented to them, they must do so solely on some other facts and circumstances in the case drawn out by the testimony. It maintains that the right of a jury to reject the mere opinion of an expert or experts is not more restricted than the right to reject the testimony of a nonexpert upon a question of fact. Juries are required, in cases of this character, to apply their own knowledge and judgment, and the issue is to be determined, not merely by the opinion of the experts, but, further, by the exercise of their own judgment of the facts on which the opinions are given. Finally, a verdict of \$5,500, the court holds not excessive for malpractice, where a child 4 years of age broke one of the bones of the left arm, just above the elbow, by a fall from a lounge, and treatment was such that the arm festered and parts of flesh came out and then left the arm without strength from elbow down.—*Jour. A. M. A.*

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#### EXPERIMENTAL REPRODUCTION OF DENTAL CARIES.

M. J. Choquet has recently made some experiments on the propagation of dental caries by direct inoculation of healthy teeth with the carious microbe, and the results were read before the Academy of Sciences in Paris on April 2. That dental caries is due to a micro-organism has been established by the labors of several investigators, but its reproduction by direct experiment has not as yet been demonstrated. From three filled teeth, the filling of which had remained intact for periods varying from three to seven years, he succeeded in isolating five species of microbes. Of one of these he was able to obtain pure cultures. The characters it presents are that it is short,

mobile, ramifying when growing in extract of meat, and incapable of liquefying gelatin. It does not grow on or in gelose, potato or serum. On gelatin peptone it forms colonies only on the fifth or sixth day. These are oval in form, opaque, and whitish in color. The growth is greatly favored by the addition of 1 per cent of glycono-phosphate of lime. It is a facultative anaerobe with disposition to develop more rapidly in vacuo. It causes glycerin, mannite, glucose, galactose, saccharose, lactose, maltose, dextrin and mulin to ferment. It is without action on dulcitol, erythritol, arabinose and the nitrates. It does not peptonise albumin nor does it coagulate milk. It does not liquefy starch paste, neither does it form indol with peptone. M. Choquet having obtained a pure culture of the microbe made a small cavity on the labial side of the incisor of a sheep, not so deep, however, as to penetrate the pulp cavity. A small platinum cup, sterilized by fire and charged with the culture, was introduced into the cavity so that the culture was in contact with the dentin and the hole in the tooth was plugged. Nine months afterwards the tooth was examined. The bottom of the cavity was of yellowish color, due to dentin being softened by action of microbe. Cultures from the carious portion of tooth gave a bacillus of the same form as that used in the experiment. The same results were obtained in two other cases.—*The Lancet*.

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**LONGEVITY OF DENTISTS.** By Waldo E. Boardman, D.M.D., Boston. Read before Harvard Odontological Society, Dec. 7, 1899. A great deal of discussion has been given in dental societies relative to the short life of dentists as a body, by reason of the physical and mental high pressure to which they are subjected; that their lives are imperilled to a greater extent than are those engaged in other professional careers; that they are overworked and labor in poorly ventilated quarters, irregular in their habits, inhale the breath of patients, and in the position at the chair are stooped, cramped and strained, and often for hours maintain such positions; that they labor too many hours, do not take the necessary recreation, too few if any vacations, etc.—all tending to nerve-strain, so frequently referred to in discussions of the questions pertaining to our calling.

We are subjected to the exacting duties above depicted, many lead sedentary and practically inactive lives, inhale fetid breaths and

exhalations from the bodies of patients, some of whom may not be scrupulously neat and clean; others are weak and nervous and come to our chairs in fear and trembling, which adds to the burden put upon our nervous force. The exacting duties of dentists have often called forth from my clientele remarks upon the unhealthy duties of our professional calling, and they have cited in support of their contention much of what has heretofore been mentioned. It is the general opinion of the laity that we, as professional men, are pursuing an unhealthy occupation.

It is not my purpose here to refute by argument what has been noted thus far, but rather to present facts bearing upon this subject for your consideration, and thought by the speaker to be quite conclusive that dentists, as a body, do live the average length of life allotted to those engaged in other professional pursuits. No doubt we labor under poor hygienic conditions comparable with the dignified callings of law, divinity and medicine, for we are at all times in contact with varying classes of individuals under different degrees of hygienic ideas. After all, do not dentists in many instances live to a green old age?

Several years ago the writer was delegated to prepare for publication a catalogue of past students of a professional school which covered a period of three decades, and in so doing he had not only to ascertain facts of those past living students, but of those who had died, and the causes of death. This set him to thinking upon this subject. Still further, he has made search through records of the past fifty years and gathered statistics of all recorded deaths of dentists given by the dental journals, and herewith presents part of the data obtained.

Many believe that consumption is the great destroyer, while others believe Bright's to be the chief disease. Is the dental profession an unhealthy one? Do dentists live as long as those engaged in other professions, and do the following facts warrant us in believing we are following an unhealthy occupation? So far as I have been able to verify from the records of the past fifty years, the facts are found to be very different from what was anticipated, for it was supposed that consumption was practically the principal cause of dental mortality. From the records of between five hundred and six hundred dentists who have died, I have the statistics of sixty-five diseases, eleven of them named below and divided as follows: Heart dis-

ease, 53; consumption, 42; Bright's, 27; pneumonia, 21; typhoid fever, 20; paralysis, 19; accidents, 16; cerebral affections, 13; stomach disease, 11; cancer, 5; suicides, 5; no disease given, 119. Total, 351.

Their ages ranged from twenty-two to one hundred years. Of one hundred and seventy-six dentists whose years of practice are known, I have figured as six thousand and twenty-nine, or an average of over thirty-four years in practice. Table of number of deaths, showing average age by decades, and average age of the total :

Age.	Number of Deaths.	Total Age.	Average.
22-32.....	81	2,242	27.67+
33-43.....	68	2,435	38.65+
44-54.....	87	4,262	49.
55-65.....	110	6,555	59.13+
66-76.....	114	8,093	70.99+
77-87.....	52	4,182	80.42+
88-100.....	5	474	94.8
	512	28,248	

55.16 years.

As an addenda, let me quote from the statistics as given in 1892 relative to Great Britain, viz., that the average life in Great Britain is nine years longer than fifty years ago. Furthermore, I quote from a speech of Dr. J. Y. Crawford, that "modern dentistry has exerted greater potency than all others in bringing about this felicitous [longevity] result. No intelligent observer will deny that the great awakening of civilized men, particularly noticeable in the United States, as to the importance of preserving the natural teeth has, in the last half-century, been a perceptible influence in bringing about the increased longevity, and that it will be still greater in the future." This will also apply to dentists, for their teeth are cared for as well as those of the laity.—*International, June, 1900.*

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ROMAN MONK DENTIST. The correspondent in Rome describes the workshop, near the bridge of Quattro Capi, of Fra Orsenico, a monk, "who, year after year, standing on the same spot, had grown gray in performing one kind of dreadful service for the poor." There, on the far side of the Tiber, in a little room by the bridge of the Quattro Capi, is a Frate, to be seen any time, who has been there these twenty years, doing the same thing day after day

for the love of God and his neighbor. Close by the west end of the old bridge is a large glass door opening into a little room, and above the door is a piece of faded tapestry, upon which in yellow letters are worked the words "Fra Orsenico, Dentista." Fra Orsenico is a tall, powerfully built, gentle-looking man of about fifty, and ever since he was thirty he has outwardly at least limited his life to the fulfillment of one corporal work of mercy. From sunrise to sunset he is there at his post ready to pull out the teeth of all who suffer and come to him, and without charge of any kind except a request for three Hail Marys. The walls of the room are covered with pious pictures; but it requires an effort to look at them, for the eye is instantly arrested by other objects. Along one side of the room and beneath the table upon which the Frate keeps the tools of his trade are two solid oak chests, without lids, and filled with teeth. Thousands and thousands of teeth of all sizes lie piled up there in those boxes—the results of the Frate's industry. Above the table is a narrow shelf of wood which runs round the room, and upon which are lovingly arranged all sorts of monstrous fangs, stubborn stumps, that it required a triumph of skill and strength to extract.

Fra Orsenico, who is dressed in the black habit of a Brother of St. John of God, told me in a quiet, simple way, that he generally pulled out daily about 100 teeth, and that he had drawn as many as 400 teeth in a single day. And he has been doing that for twenty years. Then, glancing uneasily at the little mountain of bones with their streaks of dull red beneath the table I asked the Brother how many teeth he supposed he had extracted from first to last. He smiled slowly and then said vaguely, "Perhaps millions." I should perhaps have gathered some further particulars about this strange and devoted man, but before I could ask any further questions the door opened, and a feeble, poorly dressed old woman hobbled in, and without speaking sat down. One could have hoped that her withered wintry old age would have spared her that sort of trouble: and somehow I had not quite realized what she had come for, when Fra Orsenico asked me if I would like to see the operation—it would be over in a moment. It was meant in all kindness; and I am afraid my leave-taking may have seemed a little abrupt. As I hurried across the bridge I saw a sight which seemed like a shadow across the sunshine. A child was being dragged by

two people, who from their obvious sense of possession I knew were her parents. When they had passed I looked back, and they too were going to Fra Orsenico. It is probably not necessary to add that the Frate's methods are very simple. A tooth that is drawn can never ache again, and anesthetics are costly and require a great deal more time than the Frate has to give.—*Tablet, London.*

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**SOME EFFECTS OF IMMIGRATION FROM A DENTAL VIEW.** By F. R. Dickerman, D.M.D., Boston. Read before Harvard Odontological Society, Sept. 28, 1899. Let us take Boston as a typical large city of the eastern district of the country. We find that in 1895 the percentage of foreign born to the total population was about thirty-six per cent; those of foreign parentage to total population, about seventy-one per cent. Such a percentage would hardly prevail outside of the large cities, except in particular localities almost exclusively settled by a certain class. These localities generally call for some special class of labor, and the products of this class of labor form almost the entire bulk of production of that locality. In a measure, these comers from other lands may be divided into two classes—those who become citizens after a due lapse of time, and are probably in the majority, and those who do not care for the rights of citizenship for various reasons.

It has been stated that in proportion as these new-comers become citizens so much the more readily do they become assimilated; the racial lines are broken and set aside and a general broadening of that people occurs. Inter-marriage of this class with outsiders, if we may call them such, is more common than with those who do not become citizens, always excepting those who are closely bound by some religious faith and by customs subservient to that faith. It seems to me that if one could follow out a line in this breaking down of racial distinction on the one hand, and the drawing closer and firmer on the other, some very interesting features would come to light.

Students have presented to us their views on heredity as concerns crime, pauperism, insanity, and various other matters, and it would seem that the laws that govern these things would also control the physical characteristics of a people. These characteristics would of course include the physical development of the jaws and teeth.

Those of us who are in the smaller cities and towns and who do

more of a general practice than our city brethren, may often note that the teeth of those who are foreign born and who have attained middle age or more in this country, present widely varying features. This difference ranges from one or two pin-head cavities in an otherwise almost perfect set of teeth to a most complete wreck of what was the same almost perfect set of teeth ten years, or even less, before. These teeth when good are usually short, thick and of a yellow tint, the bicuspid and molars are short, heavily covered with enamel, and nearly square in shape. The third molar is fully developed and occludes well with the upper one. However, a very small cavity in these teeth causes much trouble from the extreme sensitiveness. Where one or two teeth are missing from such a set, the left inferior first molar is more apt to be the favorite; if another should be missing, the chances are more than good that it would be on the right side—more often the upper second bicuspid or first molar.

Then we have the same kind of teeth almost entirely destroyed by black or brown decay, attrition, and crumbling. In other cases the teeth are lost wholly from pyorrhea. This trouble generally winds up the career of the teeth of this class. Then we see those who have indifferently good teeth in their native country; cases where the white horn-like decay has reduced the teeth to a choice collection of roots and abscesses; this results from a five years' or less residence in this country, no sickness of importance or other contributing cause being known. This statement is upon the patients' authority, so there may be some slight contributing cause after all, but it is quite doubtful. In these cases which I have cited the employment, habits, manner of living, and (pretty nearly the same) diet were about the same as those of their native country.

Right here I would say that I do not wish to convey the idea that before these people came to this country they did not suffer with toothache and other kindred ailments, that all immigrants have good or even fair teeth, or that in their native country there were no bad teeth. People in those countries do have toothache and do have bad teeth—in some cases notoriously bad teeth. In order to watch the deterioration of a tooth, we ought to have a tooth to start with and to watch. Therefore I have made no account of the collections of roots and abscesses with which some of these people burden themselves.

Foreign-born children of foreign parentage coming to this country seem to suffer for a time more severely than their parents, but in the end apparently come out as well if not a little better. Coming here at the age when they are about to cut the permanent teeth, the temporary teeth suffer quite badly, crumbling away until not much is left but the roots. These roots are left in many times, and quietly go about their work of keeping space for the permanent teeth or favoring irregularities. The permanent set does not seem quite so good as that of the father, but they still may be good teeth. Possibly there may be required half a dozen fillings to put them in good order, and the fillings, if properly done, remain in place for a long time.

Later the lower third molar will probably be lost either from crowding or bad texture. Such teeth are quite liable to decay, but there will be a large amount, comparatively speaking, before discomfort is felt, and these teeth may remain in use several years longer than those of their parents.

American-born children of foreign parents are especial sufferers with the early decay of the temporary set. The teeth crumble and wear away to the gum line, and alveolar abscess steps in on the slightest provocation. Then by forced premature extraction, crowding and irregularities may result. The lower first molars are not of much account in these cases, and are lost anywhere from the seventh to the tenth year, or just about early enough to let the second molars into the space, giving a fair grinding surface. Later the upper first molars and bicuspid may be lost.

A comparison of these two classes just mentioned—foreign-born children of foreign parentage and American-born children of foreign parentage—would show hardly any difference on the whole. If one suffers most at one time, the other seems to be in as much trouble later, so it is almost an even thing.

As a fitting illustration of the three types before mentioned, I will describe three sets of teeth, all of which I have seen within a year and a half. Their possessors also represent three generations—grandfather, son and granddaughter. The grandfather is a native of the Western Islands, about sixty-five years old, a carpenter by trade, and came to this country twenty-eight years ago. He still has a complete set of teeth, in which I was able to find two small cavities only, and in these decay had evidently stopped some time



ago, and they cause no discomfort. The teeth are quite well worn, and the gums have receded somewhat. An upper lateral was broken by accident. With these exceptions the teeth might be called perfect.

The son is about thirty-seven years old, carpenter by trade, and came to this country when about sixteen, to escape conscription for the military service required. His teeth seem to be about as good as the father's, but the bicuspid and molars are not quite so large. He has four fillings, mostly in the molars. The left lower first molar is missing.

The granddaughter is about eleven, and what few teeth of the temporary set that are now left are as bad as can be imagined. These teeth of the permanent set which have come through are fairly good and strong. Three of the first molars have small fillings in them. Just how these teeth will eventually turn out is, of course, wholly problematical, but now they bid fair to last her as long as she has any need of them, providing a reasonable amount of care be expended on them.

In a locality where a certain race of foreign-born people collect and settle permanently, because their special kind of labor is called for in that locality, we may find a type of jaws, teeth and facial characteristics transmitted from generation to generation. These people seldom marry outside of their race, and in many cases keep to the customs and habits of their native land, unless the police and health officers interfere. These customs have a direct influence on the mental and physical welfare of such people.

Again, in a locality where the population has a lesser percentage of foreign-born parents, but still a respectable percentage of the whole, we shall still expect to find a certain type of jaws and teeth and other characteristics peculiar to that people. In their descendants are found that same type, or traces of that type modified more or less by intermarriage and environment. In the one case the type tends to be perpetuated; in the other it seems to merge into another distinct type. So this merging-into-something-else process may go on until at some time in the far future there will be found a certain composite, which some very learned person will designate as the American jaw, the American teeth; perhaps he will go farther and add the American face. Possibly this American face will have something of the "white man's burden" in it, possibly not.—*International, June, 1900.*

SHOULD THE MEDICAL UNDERGRADUATE BE INSTRUCTED IN THE PRINCIPLES OF DENTISTRY. By M. L. Rhein, M.D., D.D.S., New York City. Presented in a symposium on Dental Education before the Section on Stomatology of the American Medical Association, June 5-8, 1900. It is at the outset necessary that the term "principles of dentistry" as used in this paper should be specifically defined. Such a definition is required, both because there should be a definite understanding of the points that the discussion should embrace, and because, mindful of the fact that the path of the medical student already bristles with subjects, we should be loath to add an unnecessary amount of work to his daily routine. A requisite knowledge of the shape and uses of the various dental instruments cannot be expected of the general practitioner; indeed, all the variations in dental technique as applied both to laboratory and operating room are distinctively beyond the scope of dental principles, in their relation to general medical education.

The question at issue then narrows itself down to the advisability of the medical undergraduate being acquainted with principles of dentistry as they bear on general medicine. That the general practitioner should appreciate fully the process of dentition, in its relation both to local and constitutional results, cannot be denied. Equally as important is it that he should be able to distinguish an incipient alveolar abscess from *tic-douloureux*, simple caries from caries complicated by exposure of the pulp, or the inflammation attending the eruption of a third molar from that caused by follicular tonsillitis. The medical undergraduate should be taught that no tooth need of necessity be lost through the ravages of caries; to judge of the efficacy of remedying these carious defects he must of necessity be able to appreciate whether or not a tooth cavity has been properly filled. He should be taught to know that more teeth are lost through disease of the periodontal membrane than through all other pathologic conditions of the mouth combined, and that prophylactic measures tending to preserve this membrane are of vital importance. He should be made cognizant of the intimate relationship existing between the general nutrition and proper mastication, so as to realize when artificial teeth are required, and if supplied, whether they are properly inserted. Such knowledge implies a proper understanding of the normal occlusion of the upper and

lower teeth; it also leads to the appreciation of the value of orthodontia as a corrective for malocclusion.

A proper appreciation of the foregoing facts necessitates that medical undergraduates be taught dental embryology, anatomy, histology and pathology, in order that these principles should form a foundation for a correct clinical observation of oral conditions. This will enable the general practitioner to serve best both his own interests and the interests of his patients, and at the same time tend to elevate the standing of the dental specialty.

No more opportune time than the present could have been selected for this discussion. For through the efforts of our medical schools, and of our state boards of medical examiners, the standard of medical education is advancing yearly. Moreover, this is an era of curriculum extension in all of our medical schools. With the advent of each scholastic term there is either an extension in the number of subjects taught or a marked improvement in the methods of teaching them. Physiologic chemistry, bacteriology, orthopedics, and the other limited specialties are yearly receiving more attention and very rightly so. Yet this era of educational progress is utterly ignoring the importance that the principles of dentistry should play in the education of all medical undergraduates. Dental instruction not only is not represented by any individual chair in any of our large Eastern medical schools, but the teaching of dental principles is not embraced in any of the allied chairs of medical instruction. A medical education which neglects to train the undergraduate in the principles of stomatology is deplorably deficient. Thinking thus, we desire to show not the *modus operandi* by which the medical curriculum should be recast or altered, but rather the disadvantages resulting from the present deficiency in medical training and the advantages to be gained by supplying this deficiency.

Such oversight in the method of medical instruction results in creating a disposition on the part of the general practitioner, not only to underestimate the importance of the principles of dentistry, but also to consider the dentist rather as an aid to comfort than as an active and important element in preserving the human economy. The evil results of the medical undergraduate's lack of knowledge of dental principles are all-pervading. On the staff of our hospitals it is rare to find a dental specialist; yet only obstinate bigotry may deny the frequent occasions that distinctively demand dental treatment.

The poor results that have attended the long-continued agitation for dental representation in the army service well illustrate the poor esteem in which dentists are held by their medical colleagues. All this, too, despite the fact that the recent war demonstrated beyond a doubt that lack of official attention not only worked havoc among the soldiers, but also required the establishment of the sporadic and so-called "dental tents," where emergency dental work was performed by volunteers, taken mostly from the ranks.

Not less productive of evil results is the lack of dental representation in our naval service; for can a more disagreeable exigency be conceived than an intractable toothache occurring in a naval cadet on a cruise miles from home—a simple case for a qualified dentist to handle, and yet one which at present usually results in the extraction of the offending tooth, and the conversion of a possible future naval officer into an incipient cripple? And all this, because our medical confrères have failed to appreciate the importance of dental principles.

That ignorance of the principles of stomatology characterizes the general medical practitioner cannot be denied; and as a result of this lack of knowledge his opportunities are greatly handicapped, owing to his inability to appreciate the diagnostic, therapeutic and prognostic aids afforded by the clinical appearances found in the oral cavity.

As regards the diagnostic aid offered by the mouth, a thorough appreciation of normal appearances is both presupposed and necessary, in order to enable the practitioner to recognize the significance of incipient pathologic changes symptomatic of systemic disease. A red, dry, glazed tongue, with characteristically swollen, hemorrhagic gingivæ, and rapid caries of the teeth are frequently the only signs of an incipient diabetes. Likewise the characteristic whipcord-like tumefaction of the gum, over the palatal surface of the teeth, is one of the earliest signs of chronic Bright's disease. Similarly in gout one of the earliest manifestations is the hard, smooth, blackish incrustations of salts found on the roots of the teeth. The peculiar linear discoloration of the gums, found as an accompaniment of metallic intoxication, renders the diagnosis of these sometimes obscure cases both easy and assured. In infantile scorbutus there is no sign of more diagnostic value than the spongy, bleeding, hypertrophied gums, accompanied by an extensive resorption of the infantile tooth structure. Finally, it may be said with confidence

that study and observation of the oral cavity will yield many more invaluable diagnostic points to the seekers of them, and thereby serve to lighten the task of the well-grounded general practitioner.

As regards the aid in therapeutics afforded the general practitioner by the recognition of oral malconditions, it is necessary only to recall the pertinent relationship existing between the many neuroses and caries of the teeth. A few citations will best illustrate this fact: Remedying a carious and irritable tooth has often succeeded in abating the intractable vomiting of pregnancy; in the treatment of chorea, attention directed to carious teeth, considered as centers of reflex irritation, has often lessened the severity of the nervous affection. And finally, how well we know the numerous forms of neuralgia that baffle medical skill until the dentist discovers an exposed pulp and removes it.

As regards the influence of oral conditions on the prognosis of systemic disturbances, we have here a field whose full value is unknown not only to the general practitioner, but also to many dentists. The minute difference in local appearances can not fail to suggest to the careful observer a proportionate idea of the systemic disturbance, and thus these appearances lead to a much more exact prognosis. At a recent meeting of the Odontological Society of New York I recited the history of a case of miliary pulmonary tuberculosis, in which, with no clinical knowledge of the case, I was yet able to give an absolutely fatal prognosis, based on conditions found in the mouth, and unfortunately verified later by the course of the disease.

Thus far we have attempted to outline those principles of dentistry, the knowledge of which would be of undoubted value to the general practitioner of medicine, and which, therefore, he should learn as a medical student. Not merely from the standpoint of the general practitioner of medicine, however, should this question interest us. As dentists it behooves us not to lose sight of the fact that the education of medical undergraduates in dental principles would serve a double utility. There would result an incalculable gain to the medical man, it is true, but it is equally undeniable that the dental profession would also greatly profit by such an educational advancement. The newly developed ability of the medical man to recognize early pathologic conditions of the teeth and mouth would result in more thorough-going prophylaxis, and in the earlier

application of treatment. Even more than this, the properly educated medical practitioner would recognize innumerable cases of important diseases of the mouth that would otherwise run their insidious course unnoticed and untreated. Granting that early recognition and the early application of treatment were in force, the task of the dental surgeon would thereby be rendered not only less arduous and more satisfactory to himself, but also far less unpleasant to his patients.

Nor is this the only benefit that the dentist would derive from such a change in the medical undergraduate's curriculum. I vouchsafe that there is known to all the members present to-day that class of dentists who, like the proverbially stubborn bird, can work well but refuse to do so. Good dental work is distinctly time-consuming. There are any number of men eminently fitted to do excellent dental work, and who indeed do accomplish excellent results, until they have established a fairly large clientele. Then, suddenly discovering that their rewards are seemingly incommensurate with their labor, and realizing that the discrepancy is due to the time consumed in doing proper work, they sacrifice their ideals. Such a sacrifice is made largely because the dentist realizes that he is the final judge of his own work. He is fully aware of the general practitioner's inability to pass judgment as to whether his patients are receiving intelligent or mediocre treatment. Armed with such knowledge, the unscrupulous dentist is able to continue the nefarious practice of working against time. The claim that the patient's appreciation of proper work serves as a check against such undesirable practices is not tenable; for the average patient does not value a piece of work properly. Appreciation of dental work is in a large measure regulated by the confidence reposed in the dentist by the patient; and an incompetent politic man often succeeds better in inspiring his patients with confidence in him than does an honest, qualified practitioner.

I have compared the above class of unscrupulous dentists to the bird that can but will not sing. The analogy may be carried further. The little bird, you know, was made to sing, and likewise the capable dentist can be made to do proper work. Let him realize that Dr. A., who sends him many patients, has graduated from a medical school where dental principles receive merited recognition, and that he therefore values good dental work and discovers faulty

results ; and the dentist will cease to work against time and attempt rather to maintain the professional opinion and favor of Dr. A. In this way the education of the medical undergraduate in dental principles will serve to bring about a much needed elevation in the standard of the dental specialty.

Still another way remains, by which an addition to the burden of the medical student's work would redound to the well-being of both dentist and general practitioner. I refer now to the cultivation of a stronger bond of sympathy between the two branches of practice. Educate the medical man properly and he will learn to appreciate the dentist at his true worth. The value of the dentist's advice and opinion will be on a par with the advice offered by the ophthalmologist, otologist or laryngologist. He will be consulted by the general surgeon before a plastic or prosthetic operation is done on the jaws or mouth, and his ideas will be sought by the general practitioner attempting to treat an obscure lesion of the alimentary tract, which might have some connection with oral disease.

Valuable as such a change in medical education would be, and productive of unlimited good, it is nevertheless opposed on various grounds and for numerous reasons. A discussion of the subject, therefore, would be lacking in completeness did it not consider these objections and show the tenuous foundations on which they rest. First of all we meet the statement that the medical, of all other professional students, labors most. His days are taken up with practical work and his nights with study, and it would therefore be impossible for him to shoulder an additional burden of work. That the medical undergraduate's lot is an arduous one none of us can gainsay, yet the scope of his work never has and never should be regulated, either by his capabilities for strenuous labor or by the amount of time requisite for him to complete his course of study. It must not be imagined that the additional amount of study would be excessive; for it is not the mastery of dental technique that is asked of the medical undergraduate, but merely that he acquaint himself with those oral conditions having a bearing on systemic disease. The problem before him is solvable, even if it be difficult. His utility to the community depends on his ability to recognize and alleviate disease; and if a knowledge of dental principles will aid him, as it undoubtedly will, this must be acquired, at whatever cost of additional expenditure of time and labor involved.

This objection disposed of, what can be said to the often repeated statement that the testimony afforded by the mouth is at best of only slight corroborative aid to diagnosis? Such a statement is truly absurd. The philosopher's stone was never more assiduously sought than are aids to medical diagnosis. If conditions of the mouth will serve to guide a practitioner properly even in a small number of cases, the knowledge of these should be as assiduously cultivated as are the physical signs of the chest and abdomen. In a very recent brochure on *pyorrhea alveolaris* Fitzgerald of London calls attention to the frequency with which diseases of the gum cause antral empyema, chronic gastritis, phlegmonous gastritis, systemic toxemia and other infectious diseases, whose early recognition and scientific treatment cannot be divorced from the absolute necessity of recognizing and appreciating the primary focus of disease about the gums. There are those who are in honest accord with us in all that has so far been said, but who believe that since there is no lack of good dental practitioners, the medical man can always refer his cases to his dental confrères and thus conscientiously avoid the disagreeable duty of himself mastering the principles of dentistry. Such a statement, however, is one of the strongest arguments in favor of our proposition. In the first place the medical practitioner of to-day is incapable of judging whether or not a particular man is an efficient dentist, and again he is oftentimes equally incapable of discovering early pathologic conditions due to oral disease, and requiring simple dental treatment in order to effect a cure. We do not deny the existence of innumerable dentists capable of aiding the general practitioner; but we do affirm the general practitioner's lack of proper appreciation of the scope of these dentists and their work in remedying systemic disease.

In conclusion, let it be noted that the mouth and teeth are as much an integral part of the human economy as are the eyes, ears, larynx or genito-urinary apparatus. The interdependence of systemic diseases and of diseases of the oral cavity is as close as that between the body and any other of its functioning organs; and therefore the general practitioner is in duty bound to acquaint himself with the appearances of the normal and abnormal oral cavity. The seemingly complete separation of stomatology from general practice in existence in this country to-day is a result of the failure of medical men of sixty years ago to appreciate the importance of dental prin-



ciples. What we are now striving for is the closure of this gap, and the only feasible way to accomplish it is to acquaint the medical undergraduate with the important bearing that a study of the mouth has on the application of the general principles of medicine. Our thesis is to emphasize the fact that in knowledge lies power, and that the resulting power is always commensurate with the comprehensiveness of the knowledge. That this knowledge need not be all-embracing we have tried to point out by distinctly limiting the term dental principles; but that it would be of unqualified value we have also tried to show by pointing out the advantages to be gained from acquiring such knowledge. There would result the necessary feeling of sympathy between the dentist and general practitioner; the general practitioner's work would be of a higher standard, the dentist's work would be more satisfactory, and lastly and most important, the patient would be better served. These results are truly to be hoped for. Although it is true that the medical profession contains men who by a self-imposed duty of study and observation after graduation have rendered themselves capable of recognizing and properly appreciating diseased conditions in the mouth, yet such men form a glittering minority. We firmly believe that the only way of increasing the number of this conscientious minority is by instructing the medical undergraduate in those principles of stomatology which will make of him a truly broad general practitioner.—*Jour. Am. Med. Assn. June, 1900.*

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HAS LEGISLATION CURED QUACKERY? By Dr. Norman W. Kingsley, New York. Read before New York Odontological Society, Feb. 20, 1900. The title of this paper suggests both a disease and a doctor, and in our treatment of the subject we must first diagnose the disease. What is quackery? The dictionaries define a quack as an ignorant and fraudulent pretender to medical skill; a knavish practitioner of medicine; an imposter; a cheat; and, I may add, any method in the practice of a profession which tends to degrade it in the estimation of the community is quackery. In its original use, the word undoubtedly meant noisy, loud-mouthed, blatant, and in its broader and more modern use it is applied to any assumption of knowledge or skill which one does not possess, whether in medicine, dentistry, law, theology, politics or religion.

If imposture, fraud and deceit constitute quackery, where stand the curists and the pathists? The alleged scientists, whether Christian or Jewish, Gentile or Mohammedan, the osteopath, the homeopath, the hydropath, and even the regular allopath who writes a prescription for an innocuous mixture and takes his fee therefor? His prescription hasn't even the merit of the shot made by the hunter who, when asked what he was aiming at, said it was something to kill if it was a deer, but to miss it if it was a calf. Quack has become synonymous with empiric, charlatan and mountebank.

The empiric is here in bad company. He is not a fraud and is not dishonorable *per se*. He is not necessarily a mountebank selling nostrums from the tail of a cart with a hand-organ accompaniment. The empiric experiments and is guided by his experience. When a sufficient number of experiments are collated to establish a fact, and a sufficient aggregation of related facts to show a system, it becomes a science. The greatest empiric in electricity of our day is recognized as the most accomplished scientist. All that is scientific in dentistry has been built during the century now ending upon empiricism, but not always by charlatans nor quacks. Nevertheless, the most noted quack in dentistry of seventy years ago introduced a material which, in its varying modifications, has saved quite as many teeth from further decay as any other material. He was a prince among empirics. The quackery was not in the material used, but in the unskillful manner of its use, and in the blatant pretension with which it was heralded.

Harris, Townsend, Maynard, Westcott, Atkinson and Dwinelle were all empirics, but not quacks. Perhaps within our own time Atkinson was the greatest empiric of them all, but he was not a charlatan.

We have all of us been empirics (those of us who have any brains); it's only the conservative dolts who haven't been. The number of inventions, operations, remedies, etc., which I have seen exploited with a bombastic flourish only to be rejected after a short life, if materialized, would fill a museum. There they lie on the shelf like grinning skulls in the Catacombs.

In the first half of this century nearly all dentists were regarded as quacks by the medical fraternity. They were empirics, but not charlatans. There *were* quacks as there always are in any vocation. But relatively there was not nearly so much quackery as exists to-

day. Fifty years ago in this city there was very little quackery. The profession contained many honored names—gentlemen of culture and social standing. In the fashionable functions of that day were to be found the names of dentists distinguished alike for their skill and good breeding. The quacks were peripatetic, itinerating from one place to another, but even they were not guilty of the crimes in the name of dentistry that are so frequently found to-day. The profession as a whole did not accomplish so much good as it does now, and on the other hand the quacks did far less harm.

As I look over the field at the close of a half century's observation, I see three grades of dentistry. Dentistry as a profession, dentistry as a trade, and dentistry as a side-show to a circus. Each of these grades carries its own customs, which are a law unto itself. A profession, by habit of thought and common consent, is a dignified vocation with a pretence at ethics. A trade may be equally dignified, but its ethics are not so rigid as those of a profession. The side-shows of the circus are classed with the mountebanks, and while their acts may not make them amenable to criminal law, they are nevertheless regarded as cheats. There is nothing morally wrong in your putting up a tent outside the circus and with a brass band exhibiting a fat woman and a two-headed calf for a shilling to those who would give a shilling to see a fat woman and a two-headed calf. Such people pay their money and get what they pay for. There is morally no imposture, for the man with a shilling when once inside can judge for himself whether the woman be fat and the calf has two heads. The dental side-show chooses for its circus one of the greatest shows on earth (outside of Barnum's), a modern department store, where in the dental "parlors" are to be found the figurative fat woman and the two-headed calf. The blare of the brass trumpet is represented by the advertisements in the cheapest daily newspapers, and all the arts of the mountebank are used to entice the victim. "Will you walk into my parlor?" said the spider to the fly.

When the verdant rustic views the real fat woman and the real two-headed calf he knows that he has received what he has paid for, but when he gets within the confines of the dental side-show he is at a disadvantage, for he is not an expert on dental operations, and however so much he may get that which he paid for, the methods of the concern savor of the mountebank and the active participants

are rightly denominated quacks. They can have no standing among honorable men. Their influence upon the community cannot but be degrading to a dignified and honorable calling. Dentistry as a system of organized and legalized quackery reaches its fullest attainment in the "dental emporiums" of the avenues and streets in which ethics play no part, and the chief and only object is to make money by all the devices known to trade; the main factors being advertising and underselling your neighbor.

In trade we see the most alluring of advertisements in large type, filling columns and sometimes covering whole pages of the daily newspaper, setting forth in the most attractive manner the quality and cheapness of the goods offered. Such advertisements are the claptrap which the brass band furnished to the circus. They are the methods of the mountebank, but when the statements are within the limits of truth the methods are legitimate, because it is a trade and not a profession, the ethics of trade being limited to "honesty is the best policy." In trade we see an establishment backed by capital, with many employes and a superintendent over them, the real head being rarely visible. Rigid discipline is maintained, the employes being not much better than slaves.

When dentistry is carried on as a trade we find the same methods prevailing; an establishment with the effort to dignify it by calling it a dental emporium; a very swell darkey in uniform, with the air of a general, at the outside, to give importance; a superintendent and hired employes under constant surveillance like so many criminals; the same kind of advertisements even to the full page, and the same effort to undersell his neighbor. All professional ethics have been thrown to the winds, and even the ethics of trade, "honesty is the best policy," are not regarded. All the characteristics of the mountebank are there, and notwithstanding the employes may have the diploma of a "reputable dental college," and are duly registered, the establishment is one of quackery, and all the employes are tainted by the association.

When dentistry is practiced by gentlemen and regulated by the ethics of gentlemen, irrespective of a cast-iron code of ethics, it becomes an honorable profession. There are no claptrap brass band efforts to entice nor allure. There is no competition in fees. The chief ambition is to excel in skill, believing that in that road lies the surest way to a competence.

Legislation relating to dentistry had its origin in the middle and western part of the state. Whitney, Westcott and Rogers were the most active promoters. I do not think that the suppression of quackery formed any prominent part of the objects they wished to attain. *That* thought was an incidental one. The primary idea was the elevation of the profession in itself, and in the estimation of the community. Organization under an act of legislature would crystallize the profession and stimulate an ambition for better things. The existence of incompetency was recognized in the provision made for censors in each of the eight districts of the state, which boards were empowered to grant licenses (upon examination) to practice in their respective districts. I do not think that the founders before named had any very clear idea of how their plan would work in practice. The state board of censors during the first year could give only a license to practice, but subsequently they were empowered to recommend to the state society the conferring of a degree. This was quite a step in advance, for whereas at the first meeting of that board nearly every one who applied received his certificate, at the second meeting they realized the greater responsibility and the examinations became more searching, and during the sixteen years of my connection with that board it was not uncommon for fifty and sometimes seventy-five per cent of those who applied to be rejected.

The power to confer a degree was criticized by the dental colleges, who seemed to feel that it was encroaching upon their special prerogatives, but in its day it served an admirable purpose. The ambition to possess a degree stimulated many a man to prepare himself for an examination, which was commonly reported to be excessively severe. Certain it is that graduates from dental colleges could not always pass and were plucked equally with non-graduates. It used to occur to me sometimes, in my cynical moods, that one of the advantages growing out of the law was commonly overlooked. It gave such a splendid opportunity for a lot of us to pose for the time being as a little above the outlanders by being made officers of different grades, for if there is anything that the average man does love it is to be lifted into a place of alleged superiority to his fellows, and for this attainment he will log-roll for himself and resort to no end of tricks to beat his competitor. No matter how humble or inferior the club, society, association, stock company or political

party, they are all possessed of the same ambition and tarred with the same stick. Hence we see the first fruit of dental legislation was the creation of opportunities for officeholding; eight district societies, each with at least four executive officers and five censors; the state society with five or six more, and last, but by no means least, that particularly select and high-toned board of which I had the honor to be president for sixteen consecutive years. Just think of it! Eighty-six officers in all. There was a time almost within my own remembrance when there would not have been any chance for privates.

The first legislation aimed directly at regulating dentistry was the act of 1879, which allowed all the quacks, charlatans, and incompetents then in practice to continue by registering as provided, but would let no more in after a certain date without diplomas. It did not separate the sheep from the goats, and it made the goats by legislative act all sheep. It was a kind of trades-union that wouldn't let any more in without conditions.

After nine years' faithful effort to suppress incompetency, the law was found insufficient for that purpose, and the aid of the legislature was again called. I will not attempt to detail or describe the amendments on amendments that appeared perennially. Hardly a meeting of the state society has been held when the chairman of the law committee has not suggested the necessity for further amendments. I have reason for believing that the best legal talent has been employed in framing these statutes, and there has been no lack of zeal in enforcing them.

What has the law accomplished? It has certainly raised the standard of professional education. It is no longer possible in this state for the barber to call himself a dentist because he has a chair. It is no longer possible for the shoemaker to turn his awls into excavators and pluggers and tramp as a dentist; nor for the jeweler, because he is skilled in gold and silver work, to undertake dental prosthetics. The law exacts that he who would essay to practice dentistry must have, before entering upon its special studies, a preliminary education far in advance of any that would be required in the trades just mentioned; an education which at least lays the foundation for culture.

Has legislation cured quackery? There are certain diseases and vices which all the legislation in the world up to the present has

failed to abate. They continue to flourish in spite of all the sumptuary or prohibitory laws on the statute books. Intemperance is conceded to be a disease and a vice, and legislation has been invoked for generations to prevent it, but without avail. Quackery is a vice and figuratively a disease. It has not been stamped out by legislation. It is not even abated. It is on the increase, and most discouraging of all, the community does not look upon it as disreputable or unethical. The mortifying fact stares us in the face, that in the estimation of a large portion of the community these quacks are dentists just as much as we are. You and I may know that we are of a different order, and so do our personal friends, but to the people at large we are dentists and so are they.

To see one's vocation, which is in itself humanitarian in character, which within its sphere is second to none in the personal benefits it confers, whose methods call for the exercise of more than the average of intelligence and skill, to see such an honorable calling dragged through the mire of charlatanism makes every one with any *esprit de corps* blush with shame and mortification at the name of dentist. I have noted in some quarters an effort to correct such a feeling by a change of name, but say what you may and do what you choose, our mother tongue has fixed irrevocably your designation. One who treats teeth is a dentist, and as ninety per cent of your duties relate to the teeth you are dentists. Call yourselves stomatologists, odontologists or what not, you cannot escape the fact that you are dentists, and if there is any opprobrium attached to this designation, you had far better devote your energies to removing the stigma than to crawl from it and expect to improve your status by calling yourselves by another name. Odontological or stomatological is well enough for the name of a society to distinguish it from some other society, but its members are dentists all the same.

I do not know what the outcome will be. In this age of gold, iron, capital, industries, thrift and trusts, are we drifting away from the strictly professional idea? As a profession we hold an anomalous position. Much as we may cry professional because that term has been regarded as a little more high-toned than trade, much of our technique differs in no way from the methods of the industries. Industries employ hired labor and trusts combine industries. So much there is in the practice of dentistry that can

be done by hired labor; so much that is really mechanical labor instead of the intellectual, as in the law, theology, medicine, literature or the stage, that it may be the inevitable drift of the age that what we call quack establishments, because of their methods, may be the forerunner of the bulk of dental services rendered in the future, particularly in cities and densely populated districts. We already see that legislation does no good in the attempt to abolish them, and but little is gained by any effort to have the community regard them as disreputable.

A certain class in the community is always looking for bargains. The vast majority is reared in moderate circumstances, and must look closely after their finances. They get bargains by shopping. They get good goods by looking about. They can see no particular object in paying any more in one place than another for anything they may want, and from their standpoint an establishment which can for any reason supply their wants at a less cost will be patronized, *and particularly if you have guaranteed, as you have by legislative act, that the individuals employed are skilled men.* What argument can you make to the shopper against the quacks?

You and I who have established a clientele upon which we can fairly rely for our few remaining years may not worry over it, but I distinctly see a menace to the prosperity of the thousand young men annually entering the ranks of dentistry. The encouragement to the newly-fledged graduate to put out his sign and ethically await a caller is so very slender that the question of sustenance forces him into an "emporium," where the stipend to say the least is not mean. How you will meet this condition which confronts you I cannot foresee.

My half-century of activity entitles me to rest. It is upon you who are younger, more courageous, more enthusiastic, that the decision will devolve whether you will accomplish your most laudable object—the betterment of your vocation—by jumping upon the evils with prohibitory laws, or recognizing the inevitable endeavor to correct its abuses.—*Cosmos, June, 1900.*

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**AFTER-RESULTS OF TREATMENT OF CARIES BY GERANIUM-FORMOL.** By MM. C. Andre and G. de Marion. In presenting the results of treating caries of the 3d and 4th degree by Geranium-Formol, a method we introduced several years ago, we



have a double purpose. 1st, to show the success of the method when properly carried out; 2d, to reduce to their real value proceedings which it has been desired to connect with the formol method, and which show that their authors have a complete misunderstanding of the use of this substance for this purpose.

In order to determine the useful properties of formol, let us see what is the condition of a tooth affected with caries of the fourth degree. The pulp has been destroyed and liquified by putrid fermentation; in its place we find the products of its destruction, and among these a quantity of infectious germs. The condition is much the same as when animal matter is destroyed in contact with the air; the canals are filled with a brown substance of soft consistence, moisture, emulsionised fatty acids, sulphuretted and phosphorised ammoniacal derivatives, and these, especially the latter which are soluble in water, are disseminated in the dentinal tubes. When formol of sufficient strength is brought in contact with putrid products there results almost instantaneous deodorisation of these residues. This important property has been observed and noted by all those who have used formol in treating the dental canals, as well as by surgeons who have employed weaker solutions for washing infected wounds.

When equal volumes of formol and ammonia are mixed together much heat is evolved, and the alkaline odor disappears. The two bodies combine thus: 6 molecules of formol + 4 molecules of ammonia = 1 molecule of hexamethylenamin + 6 molecules of water. The reaction is rapidly effected and is complete at the end of a quarter of an hour. The ammonia is thus replaced by the hexamethylenamin, which is a white powder very soluble in water and in alcohol, non-volatile, neutral, and which is neither an irritant nor caustic.

If instead of existing free the ammonia be combined with an organic acid, such as acetic, malic, lactic or citric, the same reaction occurs, setting free the acid. For instance, with acetate of ammonia the action may be thus expressed: 6 mol. formol + 4 mol. ammonium acetate = 1 mol. acetate of hexamethylenamin + 3 mol. acetic acid + 6 mol. of water.

One of us has made use of this reaction in successfully administering spirit of mindererus as an antidote in a case of poisoning by formol.

If instead of ammonia we have to do with putrid bases, free or combined, the same thing happens ; there is always a combination with the formol, a resulting neutralization of the ammonia base, and a distinct transformation into products more condensed, inodorous, non-volatile, and deprived of all irritating or caustic action.

It must be well noted that up to now the question has not been as to the microbicide action of formol ; the only effect considered is a purely chemical one of changing volatile and fetid ammoniacal derivatives into more condensed, neutral, fixed and odorless products of a constitution analogous to hexamthylenamin, although having more complicated formulæ.

This is not all, for the products of disintegration of the pulp are not formed only of ammoniacal derivatives ; there are fatty acids besides, arising from the splitting up of albuminous substances and which give that peculiar soft viscous consistence to the contents of the canals ; lastly there are gaseous products, in small quantity certainly, principally formed of sulphuretted and carburetted hydrogen.

Practically speaking, these fatty acids seem to have no distinctive noxious influence, since they are non-volatile and their chemical energy is very feeble ; but we think that by the viscous consistence which they render to the pulp residue they can, by obstructing the microscopic opening of the dentinal canals, oppose a barrier to the diffusion of formol and delay its action. What confirms us in this opinion is the much greater rapidity of the disinfecting action of formol since we employed it in an alcoholic solution the same strength as the aqueous ones.

The solution we have employed since October, 1897, under the name of formyl-geranium, has this composition: Formic aldehyd 40 parts ; essence of geranium, redistilled, 20 parts : alcohol, 80 degrees, 40 parts. That is to say, our geranium formic liquid has a strength of formic aldehyd as great as that of the commercial formols, and contains a fifth of its weight of pure essence of geranium.

Now, alcohol and essence of geranium, which separately have a very marked solvent action upon fatty acids, cooperate in a very efficacious manner by their association in the general act of disinfection in disintegrating and dissolving the viscous stuff which lines the root walls and obstructs the openings of the dentinal canals. Besides, alcohol by its own diffusability in moist places helps the diffusion of formol in the fluids of the dentin.

There remain the gaseous products and principally sulphuretted hydrogen and formene upon which our liquid has no chemical action of absorption. But these products are in small quantities, for they are set free as fast as they are formed. Alcohol, however, and the essence of geranium, which in a general way feebly dissolve gaseous bodies, can facilitate their departure by mixing with the fluids of the tooth.

Now that we have seen how the principal constituents of our combination help to produce perfect disinfection of the root walls and the dentin, it remains to speak of their sterilizing action. When the destruction of the putrid products is obtained, and only at this moment, the antiseptic work begins. The formol, the diffusion of which is very rapid in the conditions of the spot where it is placed, and the essence of geranium itself, helped by the alcohol, penetrate into the canalicules and destroy all the pathogenic germs.

If one be well imbued with this idea that the antiseptic action of formol is subordinate and subsequent to its disinfectant action, that the one can happen only when the other is achieved; if, moreover, one recollects that the disinfecting effect of formol is (according to the reactions we have stated) proportionate to the quantity used, it becomes unnecessary to use any other argument to justify the use of a large dose of formol in dental dressings. We must then repudiate every formula in which a weak dose of formol appears under the vain, underestimated excuse of its great antiseptic power; we have given to our solution its minimum strength.

After weak solutions of formol there is another form under which it has been desired to use it in dental therapeutics. We refer to powders or pastes containing formol in a nascent state. (?) We have analyzed a preparation of this kind, and it contained oxid of zinc, burnt alum, anhydrous sulphate of lime, eugenol, and an infinitesimal quantity of trioxymethylen. According to the instructions which accompanied it this powder should be mixed into a paste with glycerin, and used as a unique application to make the most complete filling possible in a cavity under a permanent stopping. Experience has shown a short time afterwards the inadequacy of this mode of treatment.

We do not know if the owners of this powder attribute its virtues to formol, but we are sure that it does not intervene, because of its insignificant proportion and its immediate absorption by the putrid

products largely in excess. It must, however, be recognized that there was a relative success, and that for some time it caused an arrest in the progress of caries. The explanation of this fact seems simple when we remember the dehydrating qualities of sulphate of lime and burnt alum. It probably happens that these powders absorb by degrees the water contained in the dentin, and as putrid fermentation requires the presence of water, there was arrest of this fermentation and a relative cessation of the morbid phenomena. But there was only an arrest and not the destruction of germs nor disinfection, and when, by a mechanism that we do not inquire into, the dehydrating properties of the powders were satisfied and moisture reappeared in the dentin, fermentation recommenced and with it troublesome symptoms.

Nothing like this occurs with our method which we have by successive steps brought to perfection. It consists in making dressings at intervals of 24 hours until the last one taken out shows not the slightest trace of fetor, but preserves in absolute purity the smell of the geranium. For these dressings strands dipped in the formol-geranium are introduced into the canals and pulp-chamber; the whole being covered in by gutta-percha.

CONCLUSION.—Geranium-formol realizes as exactly as is possible the recognized theoretical conditions for the treatment of teeth with dead pulps. 1st. It is the most powerful disinfectant known. It destroys the products of pulp fermentation, combining with and neutralizing them. This effect is shown by the complete and definite deodorization of the cavity after two or three dressings. 2d. Its antiseptic power is superior to that of sublimate. 3d. It is extremely diffusible in moist places. By means of this valuable property it acts not only on the root walls up to the apex, but even in the dentinal canalicules as far as the periphery of the tooth. 4th. When geranium-formol is placed experimentally in sufficient quantity among putrid products it deodorizes them instantly. This experience shows that dressings may be made with as short intervals as may be desired, one hour if the need for rapidity occurs in practice; generally these dressings are applied on several consecutive days. 5th. Geranium-formol does not in any way injure the hard tissues of the tooth, and does not set up any troublesome condition (periostitis) in the membrane. 6th. Geranium-formol shows the advantage of a lasting result as compared with absorbent and dry-

ing powders. These act only by causing a more or less perfect desiccation of the tooth, but this is only temporary, and when the powders become dydrated pulp fermentation recommences with the train of symptoms which it excites.

STATISTICS.—Since October, 1897, to December, 1899, we have treated with formol 350 cases of caries of the 4th degree in 242 patients. The cases of relapse occur in the proportion of 3 per cent, but it happens then in teeth the crowns of which were very much impaired by caries, and accidents which occur some time after treatment may be credited to invisible fissures or to imperfect stoppings. If we had not had formol at our disposal for these teeth we could not have attempted any other treatment.—*L'Odontologie*.

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QUININE PLANTATIONS.—“The quinine plantations, or quinales as they are called, which have been started in Bolivia by the Germans, are usually found on rough and broken mountain sides, and at altitudes of three thousand or four thousand feet above the sea. The trees will grow at an altitude of eight thousand feet, but flourish best at an elevation of about four thousand feet, for they require a great deal of sun, rain and wind to reach perfection,” writes William E. Curtis in the *Chicago Record*. “Most of the groves have been raised from the seed, which is gathered in the early summer months and planted in hot houses. When the plants are about six inches high they are transplanted upon the hillsides, which have been cleared of underbrush and plowed up beforehand so that the young roots can secure the benefit of all the moisture and plant food in the soil, and the heat of the sun. For shelter they are partially covered with twigs, straw or other light stuff, which also serves to keep the heat and moisture in the ground. After about two years this shelter is raked off; the plants are carefully inspected, and those which are not promising are replaced by new ones. The ground around them is kept clear of weeds and the young trees are carefully trimmed twice a year. In five or six years the tree will have reached a height of twelve or fourteen feet, and its trunk will be straight and slender, with a diameter of about six inches. It resembles the orange tree in size and shape and peculiar gloss of leaves. Two or three times a year three or four slips of bark about two inches wide are cut from the trunk and thrown upon a paved yard to dry. As the moisture evaporates they curl up like

cinnamon. Within a year or so nature replaces the bark that has been stripped off, and the tree is stripped again in other places. As it grows older smaller strips can be taken from the stronger branches, and a mature tree will produce an annual average of about four pounds of bark. The bark dries in a few days, and is packed for shipment in rawhide bales."

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**MECHANICAL ABRASION OF THE TEETH.** By A. H. Thompson, D.D.S., Topeka, Kan. Read before Kansas State Dental Association, at Topeka, May 3, 1900. The term *abrasion* must be clearly understood as being distinct from *erosion*, although the two words are often employed interchangeably. The term *erosion* is properly applied to that form of wasting of the surfaces of the teeth which is due alone to chemical causes, and is characterized by molecular disintegration and solution of the lime-salts of the dental tissues; while *abrasion* is the term properly applied to the destructive wear of these tissues due to mechanical causes only. The two processes are quite unlike, although the results may sometimes be somewhat similar, as in wasting of the labial surfaces of the anterior teeth, where it is often difficult to distinguish one process from the other. By *mechanical abrasion*, or *abrasion* only, we therefore mean only the destructive wear and wasting of the tooth structures from mechanical causes.

Wasting from abrasion occurs in the first instance upon the labial and buccal surfaces of the teeth, and is due in this location to the mechanical friction of the tooth-brush when used too vigorously and persistently with a lateral motion to cleanse the teeth, with the addition often of too gritty grades of tooth-powder. This form of wear is familiar to dentists in persons who are in the habit of using the tooth-brush too vigorously across the exposed surfaces of the teeth. The wear is often quite destructive, and results frequently in the cutting of deep notches at the cervical borders of the enamel, where the necks of the teeth are exposed by recession of the gums—which is also due in a degree to the hard cross-brushing. The notch is often also cut directly into the enamel of the crown. The dentin therein is as smooth as if cut with a file and polished. Sometimes it is sensitive but not usually so. Erosion occasionally takes this form of wasting in this position, so that the two processes are difficult to distinguish. It is sometimes necessary to prepare and fill

these notches before the pulp is reached, although the latter organ usually recedes by dentinification as it is encroached upon.

As to the treatment of this form of abrasion—after filling, when necessary, the patient should be instructed to employ the *vertical* instead of the lateral motion in brushing, *i. e.*, from the gums toward the edges of the teeth, and to use a brush with cross-rows of bristles and a softer and less gritty tooth-powder.

Wear of the entire labial surfaces of the anterior teeth may result from this cause also, *i. e.*, hard cross-brushing. This type is quite like some forms of erosion. Even the bicuspid and molars may be worn or notched deeply by the wear of the brush, especially on the left side in right-handed persons. The direction of the brushing motion must be corrected in these cases also. The dentin is usually quite normal in color in these notches except a slight pigmentation in some persons, or in smokers when it becomes stained by deposits of carbon, or when attacked by caries. The worn surface is often quite hard and glassy until caries supervenes to aid the work of destruction. The dentin then becomes quite sensitive, and filling is indicated as being immediately necessary.

Abrasion of the occlusal surfaces of the teeth is quite common, and is due, of course, to the attrition of mastication. This form of wear is even sometimes called erosion, but the term is erroneous as applied to it, for chemical disintegration never takes place on these surfaces. The points of the tubercles of the molars and the cusps of the bicuspid and cuspid are first worn off, exposing the dentin, which wears out in little cups surrounded by a wall of enamel. The edges of the incisors are worn off so as to show a line of dentin between the labial and lingual plates of enamel which gradually widens to a groove. This is the *first degree* of wear or *primary abrasion*, as it is sometimes called. There is as yet no disturbance of the occlusion, for the cusps and edges are yet long enough to interlock and preserve the normal articulation. Abrasion at this stage is readily interfered with by cutting out and filling the little cup-like depressions, and thereby preventing further wear.

The *second degree* of wear or *secondary abrasion* is when the cusps and tubercles are worn off and the occlusal face is quite flat. There are extensive depressions where the dentin is exposed and elevated ridges of enamel run irregularly over the surface. The abraded dentin is likely to be quite sensitive at this stage and will

require cauterizing with acids or caustics or applications of zinc phosphate cement to allay the sensibility, before the depressions can be filled with gold, which is the proper treatment. The incisors are worn off one-fourth or one-third of their length, and the dentin is destroyed so as to leave a distinct groove across the entire width of the crown. The enamel-wall being left higher, it is readily fractured and presents a ragged and chipped appearance. This groove must of course be filled to prevent further wear and chipping. At this stage there is distinct disturbance of the occlusion. With the loss of the natural eminences of the occlusal surfaces of the grinding-teeth and the rim of the overlapping edges of the incisors, the interlocking of the articulation is lost and the jaw glides forward as the teeth are reduced in length. There is a perceptible "jumping of the bite." This is especially noticeable in tobacco-chewers. The treatment consists in the restoration of the masticating surfaces by proper filling and crowning. Effort should be made to correct the occlusion by raising the bite and thereby drawing the jaw backward to its normal position.

In the *third stage* or *tertiary occlusion* the entire occlusal face is worn off, the crown is irregularly reduced in height and presents the appearance of a wide concavity with ragged enamel edges around it. There is approach of the wasting to the pulp, with the result of its dentinification and recession, or exposure and death. The latter result frequently occurs when the wear proceeds too rapidly to permit the pulp to protect itself by dentinification. As the teeth approach this stage the wear of the different dental tissues resembles in a degree the irregular wear of the teeth of herbivorous animals where the varying densities of the enamel, dentin and cementum produce a constantly rough surface for the masticating of resisting vegetable fiber. The upper and lower teeth, when closely interlocked by the irregular wear, form a fine line of contact which also recalls the normal arrangement of the occlusion in the herbivora. The edges of the enamel in the extreme stages of wear are sharp and ragged, and are a constant menace to the tongue and cheeks, which are frequently cut by them and severely wounded. Constant irritation of the tongue from this cause may sometimes, in persons in whom there is a predisposition, cause it to become the seat of cancerous growths. On account of this danger in persons past middle life, this sharpness of worn teeth must be carefully



watched and corrected. The treatment for the extreme stages of occlusal abrasion is to raise the bite to the normal line by means of cap-crowns and bridges and contouring.

The incisors and cuspids may be worn down until the cervical third, the thick portion of the crown, is reached, and the edge looks wide and grooved. This appearance has led to the popular idea of old persons having "double teeth all around," of which we often hear. The loss of bicuspid and molars contributes to the excessive wear of the anterior teeth by throwing the extra work of mastication upon them. From irregular loss of teeth irregular wear of the remaining teeth often ensues, and produces some curious forms as the result of excessive attrition in a few localities.

The primary cause of abrasion of the teeth upon the occlusal surfaces is, of course, the performance of the proper function of these organs, the reduction of food and its mastication preparatory to digestion. In many lower animals this wear is normal and necessary, and nature provides for its utilization in many remarkable ways. In the herbivora, for instance, the three dental tissues are so arranged that their different densities cause unequal wear and preserve a constantly rough surface, which is necessary to triturate the fiber of vegetable food. For the purpose of causing normal wear of the molars of elephants in captivity it is said to be necessary to add sand to their food. Again, in the rodents the enamel is very thick upon the labial surface of the incisors and thin or absent behind, so that this portion wears away rapidly, and the harder enamel in front stands up to preserve constantly sharp edges. As these teeth are of continuous growth, excessive wear is necessary to compensate for this growth. Nature thus utilizes the attrition due to use to preserve the normal effectiveness of the teeth in many lower animals, and such teeth are of continuous growth. In man, however, where there is limited growth of the teeth, and therefore no compensation for wear, it is permanently destructive.

There is much difference in persons as to the extent and degree of abrasion of the teeth. In some the enamel performs its proper function as a perfect and permanent protection to the dentin, and endures for the lifetime of the individual. In others it wears away with more or less rapidity and exposes the softer tissue, the dentin beneath, which is soon destroyed by the attrition incident to the proper mastication of food. This destructive wear without compen-

sating growth is found in other animals also. This is noticed in old dogs, rats, cats, and other animals in which the teeth are so completely worn out as to become ineffective for the purposes of mastication. In a state of nature starvation undoubtedly ensues to old individuals from this cause. In man extraneous habits, such as tobacco-chewing, often contribute to destructive wear. This is one of the common causes of abrasion of the occlusal surfaces, the silica in the tobacco leaf acting as a most effective abrading agent. Not only this, but the constant and unusual employment of the teeth assists the wear. There is a peculiar end-to-end occlusion of the teeth in tobacco-chewers that is quite characteristic, for as the tubercles wear off the jaw moves forward, and by the squarer bite contributes to more rapid wear. Cases are known where cessation of wear has followed the discontinuance of the tobacco habit. It is a mistake to suppose that the amount of wear of the teeth bears any relation to the age of the individual, as has been occasionally advanced—as in horses—although the rule holds good that the teeth of old persons are much more worn than those of the young.

Among ancient and savage peoples the excessive wear of the teeth is almost universal and often quite remarkable. It is almost constant in adult skulls, as an examination of the specimens in museums will show. This is due to the hard, uncooked, or gritty nature of the food employed. The writer has recently examined nearly two thousand skulls in the museums of Philadelphia, and the destructive wear of the teeth in ancient savage races is almost universal. Only in young skulls could the cusp patterns be made out with any degree of certainty. The pulp usually recedes before the encroachment of abrasion, but frequently it is exposed, and its death and alveolar abscess ensue. This disease from this cause is quite common in ancient skulls where the teeth are much worn. Inexpert observers of ancient skulls are disposed to classify the much-abraded teeth as being different from the teeth of other and later races which are not so abraded. For instance, when the incisors and cuspids are worn down to the thick part of the crown near the neck and more or less notched, they are crudely described as being radically different from the teeth of Europeans, and as having "double teeth all around." Many old travelers thus describe the worn teeth of savage people, and even recently a newspaper archeologist writes of the teeth of the ancient Cliff-Dwellers of Colorado as

being different from those of later man in being "double teeth all around." Some of the early explorers in Egypt described the teeth of the ancient mummies as being "thick at the edge," and different from those of living races. In the collections above referred to the writer found no ancient skulls with "double teeth all around," but did find that destructive abrasion was almost universal, the anterior teeth being often worn to the base, and showing the round section of the tooth at that point which so often misleads inexperienced observers and perpetuates the popular illusion. The mistake is pardonable in the laity, but is inexcusable in anthropologists who have a knowledge of human anatomy and are exact as to the anatomical variations of other parts of the human body.

The cause of this destructive wear is, of course, to be found in the nature of the food employed and the use of the teeth as tools besides, in ancient and savage peoples. For instance, in addition to the silica of the grain of Indian corn, the Indians grind the corn in stone mortars, like the metates of the Indians of the southwest, and sand from the stone naturally gets mixed with the meal, which of course causes much wear of the teeth. Or sand or earth gets mixed with the food at the open camp-fire, of which wild people are very careless. Or plants or nuts are eaten without the preliminary of washing the earth from them. Coarse vegetable food, more or less uncooked, with hard silicious stems causes much wear, as do raw meat, tendons, and even bones, which require much masticating effort. Cooking by means of hot stones thrown into water contributes its quota of grit to the preparation. These and other crude habits in a state of nature caused much abrasion of the teeth of our ancestors and all savage tribes.

The employment of the teeth as tools also causes much destructive wear and fracture. Savage man uses his teeth for seizing, pulling, tearing, cracking and crushing implements, and for many other purposes which civilized man performs with tools. The Eskimos chew their leather to make it soft, and as they are in the habit of thus softening their boots and other leather clothing every time it gets wet, the demand upon the teeth is excessive and results in destructive wear. In the fine Eskimo skulls the teeth are worn and fractured and the alveolar process is much thickened by this hard use. Other uses as tools to which the teeth are put by savages are very destructive, aside from mutilations for ornament.

With advance in civilization the substitution of tools for the use of teeth for many purposes, the cooking and softening of food and the exclusion of its most gritty elements, have gradually eliminated the agents that were most productive of abrasion of the teeth. Tobacco-chewing alone remains to civilized man as a lingering barbarism that is still an active cause of abrasion. A few individuals masticate the food so thoroughly as to produce wear from that cause, and some dentures seem to wear more rapidly than others, but the most wear is found in those who have lost some of the masticating teeth and the extra work of mastication is thus thrown upon the remainder. This can be readily corrected by our mechanical and artistic resources nowadays, so that restoration to normal effectiveness is quite a simple matter.—*Cosmos, June, 1900.*

\* \* \*

VALUE OF A DENTIST'S TIME. C. Edmund Kells, Jr., D.D.S., New Orleans. The following are copies of actual letters:  
Dr. C. E. Kells, Jr., City : March 3, 1900.

My Dear Doctor—I have received your bill for (\$46) forty-six dollars, including item of (\$6) six dollars for time lost by non-fulfillment of appointments, and in reply I enclose check for (\$40) forty dollars, thus deducting the charge for time, as I think I have paid you too much in the past for my family to justify such charge. If this is not agreeable to you please let me know. I am, respectfully yours,  
J. W. BLANK.

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Mr. J. W. Blank, City : March 4, 1900.

My Dear Sir—Your note of yesterday, enclosing check for (\$40) forty dollars is at hand, and I return herewith a receipt in full. However, if you had considered the matter carefully, I do not think you would have questioned the charge referred to, for you well know that all my "stock in trade" for the day is my working time. If this is employed fully the day's work proves remunerative; if not employed, a net loss equal to the day's expense is the result.

As my time is fully required by my practice, each individual hour has a certain value, and to each hour must be charged its pro rata of the day's expenses, which are determined by dividing an average year's expenses by the total number of working days, Sundays and vacation being deducted from the year. Now, when a patient fails to keep an engagement and the time is not employed, the loss

incurred is as actual to me as the sale of a bill of goods to an irresponsible party who fails to pay would be to your firm.

A patient has the same right to ask for a charge for a service rendered to be remitted as for a charge for loss of time to be canceled, for in each case the time is the factor upon which the charge is based and the former would be no more of a deduction than would be the latter. Furthermore, upon making an appointment the patient receives a card bearing the date, etc., of the same, and upon the reverse of the card is printed: "Timely notice should be given if you cannot keep this engagement, and so avoid charge for loss of time." Consequently, when said patient accepts such card it is a tacit agreement that all such time lost will be paid for.

I do not wish to be unreasonable in this matter, and all I ask is for a reasonable notice that an engagement will not be filled, under which circumstances it is cheerfully cancelled. But when one "forgets" the appointment or is not "awakened" in time to keep a 9 a. m. engagement, why, these appear to me to be frivolous excuses for which I should not suffer.

Your statement relative to having paid too much in the past, etc., does not appear to me to bear upon the subject at all, as I honestly believe that for all fees received I have given full value in services, consequently there is no balance to your credit on that account. However, the amount at issue is so small that it is immaterial, and as before stated, inclose receipt in full.

I beg to be excused for taking up so much of your time with this explanation, but I have written at length to justify the charge, and hereby demonstrate the "Professional" side of the story.

Trusting you will accept the same in the spirit in which it was intended, I remain, very truly yours, C. EDMUND KELLS.

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Dr. C. E. Kells, Jr., City :

March 8, 1900.

My Dear Doctor—Your favor of the 4th inst. received. You will please find check for (\$6) six dollars to pay your bill in full. It was no question with me of the six dollars, but I thought old clients like myself, who had paid you so much (I did not imply as you might have known, too much) money, would not come under this rule of yours which, of course, you have a right to make universal.

Your position is undoubtedly correct, and if my hour is not occupied by some one else, your loss is as actual as the loss of a sale

would be to me. I had no right to make the deduction, and am glad to rectify the error. Very respectfully yours,

J. W. BLANK.

—*Items of Interest.*

\* \* \*

**SURGICAL TREATMENT OF FACIAL NEURALGIA.** M. Chipault, who has made a specialty of the surgery of the nervous system, read some most interesting observations before the Paris Academy of Medicine (*Lancet*, June 2, 1900). The surgical treatment of rebellious forms of neuralgia has hitherto given very unsatisfactory results. Peripheral resections of the trigeminal nerve are not dangerous, but give relief lasting only a few months. Resection of the Gasserian ganglion gives better results, but is a dangerous operation, for the mortality rate is not less than twenty-five per cent. On the other hand, the pathology of facial neuralgia, which so often arises as an accompaniment of a condition of arterial sclerosis, would lead one to imagine that it is a condition of vasomotor origin. Anyway, many of the symptoms which accompany it are of vasomotor origin, and go to prove that there exists some common cause, not of the neuralgia itself, but of something which sets the neuralgia in action. Given these conditions it is a logical mode of treatment to employ resection of the superior cervical ganglion of the sympathetic, a ganglion which furnishes vasomotor filaments, not only to the branches of the trigeminal, but also to the Gasserian ganglion and its central roots. M. Jaboulay had a successful case under this treatment.

After consultation with M. Abadie, M. Chipault decided to perform the operation upon a man, aged sixty years, who for thirty-eight years had suffered from a very persistent and acute form of neuralgia which increased in severity as time went on. The pain was especially marked in the region supplied by the superior maxillary nerve. After everything had been tried without success, more particularly opium and sulphate of quinin, the patient underwent the above mentioned operation. Within forty-eight hours afterward his pain had gone and he experienced nothing but a slight feeling of heat in the gum. This case bears out the correctness of the theory that facial neuralgia is due to some vasomotor cause.

M. Chipault remarked that this operation is neither dangerous nor disagreeable, a fact which he has demonstrated by having performed

it in some fifty cases. Moreover, the scar is in the neck and not in the face, and therefore hardly visible, and the patient is spared the subsequent annoying anesthesia, which is so trying a feature of operations upon the trigeminal nerve.

\* \* \*

DOOLEY ON THE "ANTIS." "Do ye go down, thin, to Doctor Casey at the dhrug store an' git him to give ye a bottle av that mixture he gave me las' year. 'Tis not plisant to take, but it goes at a col' like an Irish lan'lord ayvictin' a tinant. Sthrong mid'cine f'r sthrong men. I was three weeks thryin' to stave off noomony iv th' lungs with th' shavins' of slate pincils that th' good doctor down be Halsted sthreet calls aunty pyreen, and aunty cammyoo, an' aunty this-an'-that-an'-the-other-thin', when with th' las' breath in me body I crawled to see Casey. He was a horse-shoer wanst, an' he mixes his med'cines in an anvil. He says, says he, 'I'll fix ye in a minyet,' he says; 'I've something here that cured Mullaney's horse,' he says, 'an' 'twill make ye r-right in no time if ye have the stren'th to take it.' I took wan dose iv it an' whin I come to I was cured. Anny disease that's pow'rful enough to get hold on Terrence needs to be treated like a fire in a furniture fachtry. Don't waste time on thim aunty med'cines. They was intinded to make sickness a perm'nent luxury. Git Casey's mixture f'r man an' baste, put him to bed, slap a musthard plaster on him that'll keep his mind employed, an' lave him to fight it out. May th' best man win. If Terrence's alive in th' mornin' he'll not have stren'th to cough. If he ain't do ye let me know."—*Ladies' Home Journal*.

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ETIOLOGY OF ACUTE TONSILITIS.—According to Class, acute anginas may be thus classified according to their importance: 1. Those caused by the pneumococcus. 2. Those caused by the diphtheria bacillus. 3. Those caused by the streptococcus. 4. Those caused by the diplococcus scarlatinae. 5. Those caused by the influenza bacillus. 6. Those caused by the staphylococcus pyogenes. 7. Mixed infections, two or more of the above germs being present in each case. These do not include absolutely all, as there may still be unidentified germs, and the anginas met with in measles and smallpox, which are probably due to specific contagion. Something like the pneumococcus zymogenes is sometimes found in throat cultures, which suggests a solution regarding the connection between anginas and the occasional subsequent endocarditis. Each of these forms is discussed separately, and the author urges giving more thought to the bacteriology of throat infections.—*Jour. A. M. A.*

# The Dental Digest.

PUBLISHED THE TWENTY-EIGHTH DAY OF EVERY MONTH

At 2231 Prairie Avenue, Chicago,

Where All Communications Should be Addressed.

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## Editorial.

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### INTERNATIONAL TOOTH CROWN CO. IN NEW JERSEY.

Since our last issue the battlefield of the Dental Protective Association and Crown Co. has been transferred to New Jersey. Some months ago the Crown Co. brought suit against Wm. L. Fish and Jos. S. Vinson, both of Newark; and the trial of these cases was postponed until the fall sitting of court. The last day of June and first of July the Crown Co. brought suit against Geo. E. Adams of South Orange, Oscar Adelberg of Elizabeth, F. C. Barlow of Jersey City, E. H. Ginnelley of Trenton, W. E. Holt of Newark, A. S. Kniffin of Trenton, R. F. Luckey of Paterson, W. P. Richards of Orange and S. C. G. Watkins of Montclair. We were in New Jersey last week, and the Association's attorney is still there looking after these suits. The Crown Co. are trying in these cases, as they have in others, which was explained in last month's DIGEST, to compel the men sued to bring their books into court and have an examination of them before a master in chancery. Mr. Offield will fight this move, and we have no fear of the ultimate outcome, for it is against all justice to grant an examination of the books until the patent has been declared valid by a suit in court. Judge Lacombe of New York, who granted the right to the Crown Co. to examine the books of the member who was sued there, has given the Association the privilege of arguing against this motion, and our attorney is now in New York for that purpose.

It appears that after attempting in various and devious ways to stampede the Association, the Crown Co. is now ready to try cases in court. That organization has stated that the Association has delayed the trial of suits, but this is utterly false. We tried to force a trial of the cases in Massachusetts, but the Crown Co. had them postponed.

It is interesting to note what ingenious attempts the Crown Co.



make to stampede the Association, to make the members lose confidence in the organization, and to intimidate and bulldoze them into settling. These points have all been amplified previously, so we will not dwell on them. To show, however, the unmitigated gall and impudence of that nefarious corporation, we wish to relate what happened recently. H. A. Parr, a dentist in New York, who is a stockholder in the Crown Co., came to the recent meeting of the National Association at Old Point Comfort simply to prefer charges against the chairman of the Protective Association. He tried to get on the floor during the meeting to reply to our remarks, but this was not allowed, and he was told that it would be necessary to prefer his charges in writing to the Executive Council, which would pass upon them. He did this, and in the written charges accused us of "unprofessional conduct; of making false and misleading statements; of advising witnesses how to testify for the Crown Co.; of repeatedly talking with me (Parr) about the suit brought; of promising not to defend if a new suit was brought, as he (Dr. Crouse) was sorry for Dr. Low; of abandoning witnesses and members to their fate," and in short, of standing in with the Crown Co. As Parr had no proof to substantiate any of these charges, and as his position entitled him to no consideration, the council notified him that the charges could not be brought before the Association, as there seemed to be nothing to back them up.

An individual, and a dentist especially, who would hold stock in the Crown Co., a despicable organization which is trying to bleed his fellow dentists, is so low down a creature that he is unworthy the attention of any self-respecting member of the profession.

We owe an apology to our readers for having dignified this Parr with a notice, but as the agent of the Crown Co. we thought it best to show him up. The idea in this last move was simply to discredit the chairman of the Association in the eyes of his confreres and in this way diminish confidence in the organization which he served. To show its disapproval of any such procedure, the National Association passed the strongest kind of resolutions upholding the Protective Association and its management and criticizing those who seek to overthrow same.

We trust the readers of the DIGEST will pardon us for reiterating this caution, but from the letters of which we are daily in receipt it seems necessary. Members should not under any circumstances

make settlement with, render an accounting to, or treat in any way with the Crown Co., as the Association can take care of that corporation. Our earnest desire is to force the Crown Co. into court and there by process of law show the worthlessness and invalidity of its patent claims.

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## NATIONAL DENTAL ASSOCIATION.

The fourth annual meeting of this organization, recently held at Old Point Comfort, can not be considered a great success from a literary standpoint. The section reports were not up to the average and were far from being what they should be. The need of a more systematic plan of work, whereby a better program is presented at each meeting, is painfully apparent. If we expect to increase the membership and induce the young men of the profession to attend these yearly meetings, we must offer enough of value to repay them for the expenditure of time and money incident upon attendance.

The future prospect is more encouraging, for the various sections held separate meetings this year for the purpose of adopting plans of procedure which might result in better work. Never before at any meeting have the sections discussed or outlined any definite or concerted plan of action, but this year each section took the step in advance, and if the plans are carried out we may well expect a radical improvement in the literary work of the Association.

The attendance this year was up to the average. In fact, strange as it may seem, it was reported that there were two more actual members registered than at the big meeting last year at Niagara Falls. The membership, however, is not nearly so large as it should be. Since the consolidation of the American and Southern Associations into the National there has been a determined effort in some quarters to limit to state societies the delegates to the National, with the idea of fostering and strengthening the state organizations and compelling practitioners to join same in order to become members of the National. This was not, however, a broad view to take of the question, and this year the amendment to the by-laws was adopted, which gives representation to all regularly organized dental societies, and we think it is a most wise provision. This will increase the membership and secure the attendance of members of local societies, most of which organizations meet monthly, and a great many of same are composed of the best workers and most

talented men in the profession, of whose services the National has need.

This year was the first time the executive council was in operation, and all observers must have noticed the change and improvement in the sessions, for much time was saved and a deal of confusion avoided by having most of the miscellaneous business disposed of in the council. This same plan has worked well in state societies, and it will in the National if the council performs its duties wisely, as was exemplified this year.

We would suggest one other change in the plan of work which we think would be equally beneficial, and that is, to select a permanent presiding officer, who should be chosen simply and solely on account of his fitness for that important duty. Few men have this qualification, and the result is that many meetings do not accomplish much and the work is hindered because the presiding officer does not understand and can not carry out his duties. If this suggestion should be adopted one great essential to success will have been secured. The president can then be honored with the position without reference to his ability to preside over the meetings. As it is now, the honor is always the leading factor, and in most cases the one chosen fails in the most important quality, namely, not being able to conduct the meetings without allowing irrelevant matter to creep in and much time be wasted. It must not be thought that we are criticizing the presiding officer at the last meeting, Dr. B. Holly Smith, nor the one chosen to officiate at next year's session, Dr. G. V. Black, for they both are well fitted for the office. We make the above suggestion generally, as the National Association has not always been and will not always be so fortunate in its choice of presiding officers as it has been in the last three selected.

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## Notices.

### WISCONSIN STATE DENTAL SOCIETY

At the annual meeting of this organization, July 17 19, 1900, the following officers were elected: Pres., E. A. Gatterdam; First V. P., E. J. Hart; Second V. P., T. S. Reuter; Sec., W. H. Mueller; Treas., H. A. Palmer.

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### RHODE ISLAND STATE DENTAL SOCIETY.

At the twenty-third annual meeting of the above body, July 11, 1900, the following officers were elected: Pres., G. H. Ames; V. P., R. L. Davis; Sec.,

C. A. Carr; Treas., H. W. Gillett; Librarian, D. F. Keefe; Ex. Com., J. A. Lynch, W. R. Howard, Jas. E. Power.

#### PENNSYLVANIA STATE DENTAL SOCIETY.

At the thirty-second annual meeting of this society, July 5-7, 1900, the following officers were elected: Pres., S. B. Luckie; First V. P., M. H. Cryer; Second V. P., G. L. S. Jameson; Rec. Sec., C. V. Kratzer; Cor. Sec., V. S. Jones; Treas., R. H. D. Swing. The next meeting will be held at Pittsburg the second Tuesday in July, 1901.

#### MAINE STATE DENTAL ASSOCIATION.

At the thirty-fifth annual meeting of this society, held at Brunswick, July 17 and 18, 1900, the following officers were elected: Pres., C. H. Haines; V. P., W. S. Payson; Sec., H. A. Kelley; Treas., E. J. Roberts; Librarian, E. Bacon; Ex. Com., E. C. Bryant, F. A. Burnham, D. W. Fellows, C. H. Merritt, J. E. Harvey. The next annual meeting will be held at Old Orchard, July 16 and 17, 1901.

#### HARVARD DENTAL ALUMNI ASSOCIATION.

Alumni day for the fourth year was held by this organization in Boston, June 25, 1900. In the evening the twenty-ninth annual banquet was observed at Young's Hotel, covers being laid for one hundred and seven. The following officers were elected for the ensuing year: Pres., C. P. Wilson, '72; V. P., H. W. Gillett, '85; Sec., W. E. Boardman, '86; Treas., H. S. Parsons, '92; Ex. Com., W. E. Boardman, '86; W. P. Cooke, '81; P. W. Moriarty, '89.

W. E. BOARDMAN, Sec.

#### MISSOURI STATE DENTAL ASSOCIATION.

At the annual meeting of this body, held July 10-13, 1900, the following officers were elected: President, F. F. Fletcher; First V. P., W. M. Carter; Second V. P., F. H. Achelpohl; Cor. Sec., B. L. Thorpe; Rec. Sec., H. H. Sullivan; Treas. J. T. Fry. Committee on Ethics, A. M. Magee, J. F. Hull, G. H. Gibson. Censors, R. R. Vaughn, J. W. Hull, J. F. McWilliams. Publication Committee, Wm. Conrad, W. W. Birkhead. Ex. Com., F. M. Fulkerson, W. M. Carter, J. F. Hull. Com. on International Dental Congress to be held during St. Louis World's Fair, 1903, Wm. Conrad, B. L. Thorpe, H. J. McKellops, F. F. Fletcher, A. H. Fuller, W. M. Bartlett, W. F. Lawrenz. The next meeting will be held at Sedalia, July 9, 1901.

#### NATIONAL DENTAL ASSOCIATION.

At the fourth annual meeting of this association, held at Old Point Comfort, July 10-13, 1900, the following officers were elected for the ensuing year: Pres., G. V. Black, Chicago; V. P. for west, T. W. Brophy, Chicago, reelected; V. P. for south, M. F. Finley, Washington, D. C., reelected; V. P. for east, E. S. Gaylord, Hartford, Conn.; Rec. Sec., A. H. Peck, Chicago; Cor. Sec., Mary E. Gallup, Boston; Treas., Henry W. Morgan, Nashville; Ex. Council, H. J. Burkhart, Batavia, N. Y.; J. Y. Crawford, Nashville; Thos.

Fillebrown, Boston; W. E. Griswold, Denver; B. Holly Smith, Baltimore; Ex. Com., C. N. Johnson, Chicago; T. P. Hinman, Atlanta; V. H. Jackson, New York. The next meeting of the association will be held at Milwaukee the first Tuesday in August, 1901.

#### LATEST DENTAL PATENTS.

- 650,042. Dental chair, A. L. Gilmer, Alamosa, Cal.
- 650,850. Dental impression tray, L. A. Block, assignor one-half to R. C. Graham, Chicago.
- 650,088. Dental instrument, A. D. Hoag, Philadelphia.
- 650,153. Dental tray, C. McLearn, assignor to A. I. Watt and R. C. Graham, Chicago.
- 650,260. Dental trimmer, C. F. C. Mehlig, New York.
- 651,469. Dental motor, O. H. and A. F. Pieper, Rochester, N. Y.
- 651,758. Dental compound, B. C. Fowlkes, Mobile, Ala.
- 651,922. Dental instrument, W. E. Harper, Chicago.
- 652,197. Dental heater, W. F. Slack, Northwood, N. H.
- 652,404. Dental appliance, L. C. Sharp, Omaha, Neb.
- 652,719. Fan attachment for fountain spittoon, J. F. Mayer, assignor one-half to J. M. Cornyn, Philadelphia.
- 654,109. Dental articulator, H. Backstrom, Montpelier, Idaho.

#### TRADE-MARK.

- 84,765 "Fellowship"—Dentists' supplies, Dental Protective Supply Co. of U. S., Chicago.

### News Summary.

W. L. WINSLOW, 68 years old, died June 27, 1900, at Kansas City.

J. H. SCALES, a dentist at Black Rock, Ark., died suddenly July 7, 1900.

HURLEY DIRK, 23 years of age, a dentist at Unityville, Pa., died July 12, 1900.

WOMAN'S LAUGH.—Nothing makes a woman laugh so much as a new set of teeth.

GUY DENNIS, formerly a dentist at Henry, Ill., died in California recently from appendicitis.

H. McCOLLUM, 92 years old, and for many years a dentist at Geneva, O., died June 28, 1900.

P. T. TURNER, a dentist at Stockton, Cal., was fatally injured by an electric car July 1, 1900.

J. R. BRISTOR, 66 years old, and for 40 years a dentist at Mansfield, O., died suddenly July 6, 1900.

L. E. SMITH, 35 years of age, formerly a dentist of Myerstown, Pa., committed suicide July 1, 1900.

**N. C. WEINBERG**, a dentist at Racine, Wis. 32 years old, died of heart disease on a train July 5, 1900.

**J. WARD HOUSE**, our cheerful friend at Grand Rapids, Mich., was married recently. Congratulations are in order.

**LOUISVILLE COLLEGE OF DENTISTRY** held its fourteenth annual commencement June 27, 1900, and graduated forty-five students.

**ONE DAY OF SICKNESS** will do more to convince a young man that his mother is his best friend than seventeen volumes of proverbs.

**COCAIN POISONING**.—Recumbent position; amyl nitrite inhalations; aromatic spirits of ammonia in water, to be slowly sipped.—*Med. Brief*.

**GREENLAW CHRISTY**, 50 years old, and for some time a dentist at Orange, Tex., committed suicide June 28, 1900, owing to poor health and poverty.

**ELKHART (IND.) DENTISTS' BUSINESS ASSOCIATION**.—This organization has been formed for mutual information and protection against chronic dead-beat s.

**YOUNG LADY'S DIARY**.—On transatlantic steamer: Evening—"Took three pills before retiring." Morning—"Passed an iceberg at 7 a. m."—*Practical Medicine*.

**LOUISIANA DENTAL BILL**.—The new bill gives the State Board of Examiners increased power, and does not exempt men with diplomas from the board's supervision.

**CONSTITUTIONAL, SUBMUCOUS, SUPPURATIVE ADENITIS**.—A foreign journal reports a case of a man who developed this condition in a chronic state from carious teeth.

**E. H. NEALL**, a dentist for 30 years, died at Philadelphia July 8, 1900. He was a son of the late Dr. Elijah Neall, one of the first dentists who practiced in Philadelphia.

**WATERPROOF GUM FOR PAPER**.—Paper treated with a solution of formalin, to which an ammoniacal solution of casein is added, is rendered waterproof.—*Pharm. Post*.

**WHAT'S IN A NAME**—A Berlin physician recently published an article in the *Therap. Monats.* extolling the virtues of the "Backhaus-Milch" for infants.—*Med. Record*.

**NERVE BRIDGES BROKEN** off in a root-canal can be easily removed after a dressing of 25 per cent pyrozone, applied on cotton, has been left in the canal for a few days.—*S. L. Walton, Items*.

**GEO. H. MARKER**, 50 years of age, formerly a well-known dentist of Hayfield, Va., died under suspicious circumstances at San Francisco, July 12, 1900, and it is thought he committed suicide.

**POWDERS FOR TRIGEMINAL NEURALGIA**.—The *Riforma medica* for January 10 gives the following formula: R Extract of cannabis indica, 7½ grains; salicylic acid, 75 grains. M. Divide into ten powders. One to be taken three times a day.

**CAPE NOME NOT PROSPEROUS FOR DENTISTS.**—A dentist at Cape Nome writes to his brother at Los Angeles, Cal., stating that he is about to come home, as dentists cannot make a living up there.

**DENTAL WEDDING PRESENT.**—An advertising dentist at Macon, Ga., offers a present to the young couple who are married during the Street Fair. The bride shall be given a full set of false teeth and the groom a gold crown.

**PET NAMES.**—"The most graceful of domestic animals is the cat, while the most awkward bird is the duck," says an observer of nature; but it won't do to use these facts for a basis if you want to call a woman pet names.

**TEETHING GERM.**—Doctor of Old School: The child appears to be teething. Doctor of New School: Impossible! The bacteriological diagnosis discloses no trace whatever of the characteristic teething bacillus.—*Detroit Journal*.

**BLEEDING OF THE GUMS AFTER EXTRACTION.**—In five severe cases J. Munk (*Aerzt. Central-Anz.*) has seen almost immediate cessation of the hemorrhage follow the placing of a stypticin tablet upon the previously cleansed gum.

**DOG'S PRESENCE EXPLAINED.**—"Why does the dentist who does painless extraction keep such an ugly dog?" "Oh, that is because his patients often get frightened and the dog has to watch that they do not escape from the waiting-room."

**FINANCIAL GENIUS.**—Tommy: "Mamma has promised me 25 cents if I will have this tooth pulled. I am going to do it and buy candy with the money. That will spoil the other teeth, and I will get more quarters."—*Sondags Nisse*.

**BUFFALO (N. Y.) DENTAL ASSOCIATION** held its thirty-sixth annual meeting June 30, 1900, and elected the following officers: Pres., G. B. Scott; V. P., R. Murray; Rec. Sec., B. W. Whipple; Cor. Sec., L. F. Frank; Treas., S. Eschelman.

**IRITIS FROM DENTAL IRRITATION.**—Milliken reports a case of iritis apparently directly connected with decayed teeth, and relieved by their treatment. He thinks there is no question as to the casual relation of the dental disorder to the Iritis.—*Jour. A. M. A.*

**"UNIVERSITY OF DELAWARE."**—According to the *Philadelphia Record*, a saloonkeeper, a dentist, and the wife of a carpenter, have organized the "University of Delaware" at Wilmington, and are prepared to issue any sort of degree, providing the stipend is large enough.

**RATIOCINATION.**—"No, he's no better," said a woman, when the doctor came to visit her husband. "You told me to give him as much of the powder as would lay on a ten-cent piece. I hadn't a ten, but I gave as much as would go on ten ones, and he's worse, if anything."

**EVANS' MUSEUM WILL BE ESTABLISHED.**—It is reported that the legal obstacles have been removed and that an amicable settlement has been reached between the city of Philadelphia and the executors and heirs of the late Thos. W. Evans, so that the museum will be a reality.

**SOLDER FOR ALUMINUM** has been patented by an Illinois man, the components of the material being an alloy of tin, bismuth and zinc, the tin being considerably in excess of the other ingredients in the solder.—*Patent Record*.

**INDIA-RUBBER** can be devulcanized by a new Danish process, consisting in reducing the rubber to pieces of suitable size, and then subjecting them to a solution of sulphite under heat, the solution being washed out after it has softened the rubber.—*Patent Record*.

**CHANGE IN DOCTORS.**—Doctor—"Why, my man, you are going to get well. When I was your age I was just as low as you are now with this same trouble and pulled through."

Patient—"Yes, but you didn't have the same doctor."

**TO REMOVE OFFENSIVE SMELL OF IODOFORM** following its use in a surgical operation, wash the hands in soap and water, rinse with dilute aqua ammonia, after which use the juice of a lemon or a little cider vinegar, and it will completely destroy the offensive odor.—*Eclectic Med. Jour.*

**ANEMIA AND CARIOUS TEETH.**—Hunter in the *Lancet* recently described a number of cases of pernicious anemia in which carious teeth were found, and he attributed the blood disorder to the swallowing of septic material from the mouth and its subsequent absorption in the stomach.

"My muizzer says I've tut a tooth,  
But somehow I tan't see  
Why muizzer doesn't tell ze truth,  
An' say ze tooth tut me."

—*Chicago News*.

**TENDER FEET.**—Harden the epidermis and destroy bacteria with salicylic solutions five per cent, remove offensive odors with formic-aldehyd solutions two per cent, or apply tannoform powder (formaldehyd added to an aqueous solution of tannin and precipitated with hydrochloric acid.)—*Med. Record*.

**IMPORTANT DENTAL TESTIMONY.**—A millionaire brewer jumped over Niagara Falls in September, 1898, and a reward was offered for the recovery of his body. A skull has been put forward as genuine, but his dentist in Philadelphia states that from the condition of the teeth it could not be that of the deceased.

**ILLEGAL PRACTICE PUNISHED.**—A man in Maryland was fined \$188.56 recently for practicing without a certificate. A man in Washington was convicted on the same charge, but applied for a new trial. One in Illinois was fined \$50 and costs. Another in Ohio \$25 and costs. Let the good work go on.

**NEEDS WATCHING.**—Tompkins: "That's a handsome umbrella you've got there, Gibbs."

"Yes, Tompkins."

"About what does it cost to carry an umbrella like that?"

"Eternal vigilance."

**RAISING THE HAT AN ANCIENT SALUTATION.**—When a knight of old entered a company of ladies he removed his helmet to indicate that he considered



himself among friends, and that there was no need to protect himself. This practice has survived in the custom of raising the hat when saluting a lady. —*June Ladies' Home Journal*.

"NATIONAL ASSOCIATION OF LIBERAL PHYSICIANS, SURGEONS AND DENTISTS"—This organization met at a Chicago hotel June 27. Inasmuch as the speakers were J. M. McDonald, J. H. Randall and T. A. Gland, we are naturally somewhat suspicious of the organization, for J. H. Randall was formerly vice-president of the defunct and disreputable Independent Medical College.

TOOTHACHE.—Bros. put up a genuine Nerve-killer, in unlabeled bottles, to be sold by chemists as own preparation; price 3s. per doz., net, with monthly account. Samples free. One chemist only supplied in each locality if desired. N. B.—This preparation is now also put up labelled and carded. A very reliable line. Same price.—*Advertisement in English journal*.

UNION LABEL ON COFFINS, or no burial in Chicago cemeteries, is part of the latest labor program. This, says a St. Louis contemporary, is an extension of power that stops only at the grave because it can get no further. This is a mercy for the unregenerate non-unionist, who otherwise would have to pay the penalty of being a free man in one world by being a vagabond in the next.—*Med. Age*.

HANDSHAKING A RELIC OF KNIGHTHOOD DAYS.—In the days of knighthood every man carried a sword and was ready to slash his neighbor upon the slightest pretext. When friends met they grasped one another by the right hand, thereby indicating peaceable intentions, as each one thus gave up to the other his fighting arm. This is why we shake with the right hand.—*June Ladies' Home Journal*.

FISTULA OF THE PHARYNX.—Freudenthal reports a case of fistula of the pharynx connected with disease of the ethmoidal and frontal sinuses, which was completely relieved by attention to these parts. He thinks the infection took place through the pus burrowing down from the ethmoid through the sinus maxillaris, and from there through a fistulous tract to the pharynx.—*Interstate Med. Jour*

PORK DANGEROUS—The necessity of exercising great caution in the use of pork as food is again brought home very forcibly to us in the last report of the microscopist of the Department of Agriculture. In the microscopical inspection for trichinæ, 1,881,309 specimens were examined, and of these 13,325 were found to be infected. The expense connected with this examination cost the government \$11,669.—*Med. Age*.

SUPPURATING DISEASES OF TEMPORAL BONE.—Burnett reports a number of cases of mastoiditis, Bezold's abscess, general necrosis of the temporal bone, etc., in whites and negroes. Some years ago he reported on the rarity of dry catarrh and suppuration among the negroes, though the latter is frequent among the children; they are almost without exception badly nourished and scrofulous, though not always tuberculous.—*Jour. A. M. A.*

**NOT WHAT HE MEANT TO SAY.**—Jones had a debtor who promised, but did not perform, so sent him this letter: "Dear Mr. Smith: Who was it promised to pay up on the first of January? You, my dear sir, you are the man. Who was it promised to settle on the first of March? You, my dear sir. Who was it that did not settle on the first of March? You, my dear sir. Who, then, is an unmitigated scoundrel? Yours truly, *John Jones.*"

**SOUTHERN DENTAL SOCIETY OF NEW JERSEY.**—The dentists in the seven lower counties of New Jersey have organized a society with the above title. The organization has now twenty-three members, and the meetings will be held monthly. The officers are: Pres., J. E. Duffield; V. P., O. E. Peck; Rec. Sec., A. K. Wood; Cor. Sec.; W. W. Crape; Treas., M. A. Morrison; Ex. Com., A. Irwin, C. H. Tuttle, E. E. Bower, A. B. Dewees, J. G. Halsey, J. F. Summis.

**DEATHS FROM EXTRACTION.**—A fourteen-year-old boy at Marion, Ind., had a tooth extracted June 25, and felt all right except for a numbness of the jaw. He died, however, at one o'clock the next morning. A young man at Manitowoc, Wis., had several teeth pulled July 9, and died in terrible agony from lockjaw. Another young man at Osceola, Ind., had a tooth extracted July 5, a local anesthetic being used. Blood poisoning set in and he died in agony four days later.

**PERIPHERAL RESECTION OF FIFTH NERVE.**—By Dr. W. W. Keen and Dr. William G. Spiller.—In spite of the transitory relief from these peripheral operations, their lower mortality would seem to give them the preference as against the Gasserian operations. Recourse to operative procedure should be had before the ganglion becomes involved. Very early operations (*e. g.*, after a month or two of ineffectual medication) may even cure permanently. The extraction of all the teeth seems to be an utterly needless sacrifice and productive of no good result.—*Jour. A. M. A.*

**OCCASIONAL ADVANTAGE OF LONG HAIR.**—If we may judge from a story recently printed in the *Anaconda Standard* there may be a decided advantage on occasions in having long hair. It is that of a drunken Cree Indian who crept in behind a switchboard of an immense electric power house to sleep off the fumes of his fire-water, and for the time being shut off the electrical supply of the city of Butte. He was speedily rescued and found to be uninjured. His escape was attributed to the fact that his long hair, worn in a braid, had been drenched by the rain, and, coming alone in contact with the electrical current, had short circuited it.—*N. Y. Med. Jour.*

**COVERING FOR THE FEET.**—Zeutch (*Therap. Monat.*) All concede that our present methods of dressing the feet are unhygienic, and Zuetch proposes a remedy which will absorb the moisture of the foot and ventilate the shoe at the same time. This desirable result is accomplished by wearing an inner sole of two layers of blotting paper, and underneath them a layer of curled horsehair. The blotting paper absorbs the moisture from the foot and the upper layer will always be found dry; the pressure of the foot on the horsehair crushes it flat, but it resumes its former curl as soon as the foot is lifted, thus creating a vacuum which aspirates air to fill it.—*Jour. A. M. A.*

**ADJUSTING RUBBER DISC ON FOOT BLOWER.**—The rubber disc on my foot blower having bursted, I set about putting on a new one, but gave it up in disgust after two hours' work. Then an idea came to me which may help some one else out of the same fix. I soldered together the ends of a strip of tin about three-quarters of an inch wide, and long enough to go around the block of the blower rather loosely. I then laid the rubber disc flat over the blower, and pressed the tin hoop over the rubber and blower one-eighth of an inch; then wired it into place, took off hoop and wired net; all complete in five or ten minutes.—*J. T. Wheelock, in Brief.*

**PSYCHICAL ELEMENT IN DISEASE.**—The *Columbus Medical Journal* quotes the following translation of an Arabic legend by R. R. Bowker from the *Century*:

The Spirit of the Plague entered the gate.

One, watching, asked, "How many wilt thou slay?"

"A thousand," spake the Spirit, "is my quest."

The Plague made end. The Spirit left the gate.

The watcher cried, "Ten thousand didst thou slay!"

"Nay, one," the Spirit said, "fear killed the rest."

**EASY AND EFFECTIVE METHOD OF MAKING A TINFOIL DISK FOR PULP CAPPING.**—By Dr. E. B. Lodge, Cleveland. By means of a rubber-dam punch and a piece of No. 60 tinfoil you can punch out a disk that is admirable for capping slight exposures. When a small disk is used it may do well, whatever the condition is, in placing it just where you would like to have it. What I claim for this is the advantage in the manner of taking them up with a carrier. It punches out a small cone, and by taking hold of the cone at the apex you can insert the ohloro-percha, and it is in the form of a tiny cup and you can place it just where you want it without any shifting of the capping.—*Ohio Jour.*

**ANESTHESIA OF THE SKIN BY THE USE OF AN ELECTRIC CURRENT.**—Gonka (*Centralb. fur Chirurg.*, 1900) has endeavored to anesthetize the unbroken skin by the use of cocain solution and the galvanic current. A wad of cotton was saturated in a four per cent solution of cocain, placed upon the surface which it was desired to affect, and over this was placed the positive electrode of the battery, the negative electrode being applied to any other portion. The amount of anesthesia accomplished depends upon the strength of cocain used and the amount of current. A current of ten milliamperes continued for ten minutes enabled the operator to drive a needle through the skin without causing any pain; nor could the burning of a hot glass rod be perceived. Anesthesia did not last longer than five minutes.—*Ther. Gaz.*

**HEALTH HINTS.**—Don't work your ears; it may cause action in the brain cells.—Don't allow your necktie to mount above your collar; it creates insanity in people you meet.—Always wash your feet in water; molasses attracts flies.—Don't work in winter; it brings on pneumonia. and in summer it debilitates by increasing the perspiration.—Always breathe either through your mouth or nose; deafness may result from breathing through your ears.—Eat fruit and vegetables in the summer; they are too expensive in the win-

ter.—Cats carry diphtheria; don't contract diphtheria if you keep a cat.—Always disinfect your moustache before kissing your—wife. At the left hand side of the bar you will find coffee and cloves for this purpose.—Don't spit on the floor; with a little practice you can hit the rug.—Avoid all drafts; learn the step of the bank cashier and jump into a closet.—*Gillard's Med. Jour.*

**RESECTION OF THE SUPERIOR MAXILLARY NERVE.**—M. R. Belin (*Le Progress Med.*) reports a successful resection of this nerve according to Poirier's plan, which depends upon the following anatomical points: 1. Normally the upper border of the pterygo-maxillary cleft is from four to six millimeters above the horizontal which cuts the superior surface of the junction of the zygomatic and malar bones. 2. The external wing of the pterygoid process and the pterygo-maxillary cleft are on a mean of four centimeters from the zygomatic arch. 3. The pterygo-maxillary cleft is always upon a line drawn perpendicular to the zygomatic axis passing through the temporo-maxillary articulation—that is, about one centimeter behind the angle formed by the zygomatic axis and the external orbital process of the malar bone. By following these measurements carefully the nerve can be attacked in the pterygo-maxillary fossa.—*N. Y. Med. Jour.*

**MOLAR IMPLANTED IN THE ORBITAL WALL OF THE LEFT MAXILLARY SINUS.**—M. Liaris (*Rev. Hebdo. de Laryngol*) presented a patient with an interesting condition of ectopic dentition. It was a case in which a molar was lodged in the left maxillary sinus. When the patient was first seen he presented an asymmetry of the face analogous to that accompanying ulcerating teeth. Palpation disclosed a tumefaction in the superior part of the upper maxillary sensitive to pressure. In the mouth one perceived a reddened, bulging, irregular mass which bled slightly. The orbital wall of the sinus was slightly elevated and roughened. Transillumination of the sinus disclosed a cloudiness, and lavage after puncture removed a slight amount of pus. The first impression was that a neoplasm had developed in the maxillary bone or within the cavity. After a few days, during which detergent injections and applications were made, the sinus was opened, and a well-formed molar was found in the posterior part, located on the wall of the sinus, embedded in the orbital face.—*Med. Age.*

**DENTIGEROUS CYSTS OF THE SUPERIOR MAXILLA AND THEIR RELATIONS WITH THE MAXILLARY SINUS.**—P. Jacques and G. Michel make the following classification: (1) Cysts of external origin, which develop about the roots of the incisors, cuspids, and sometimes the premolars. These have a great tendency to develop toward the cuspid fossa, separating the two tables of the maxilla. As a rule, it is the external table which yields, as it is the thinner; thus the anterior wall of the antrum is bulged outward. Finally it gives to the finger the characteristic crackling feel. (2) Cysts of sinus origin. As a rule these simply pouch inward the wall of the sinus without actually breaking through, so that there is no communication between the cavity of the cyst and that of the antrum. Sometimes, however, such a communication does actually exist. In the former of the two conditions extraction

of the tooth involved will provide proper drainage, but in the latter it is necessary to perform the classical operation for opening and draining the antrum.—*Rev. Hebd. de Laryng. Med. Rec.*

**ALVEOLAR CATARRH IN CHILDREN.**—(Gittings and Judson; *Pediatrics*, Jan. 15, 1900.) Alveolar catarrh begins as a proliferation of the alveolar epithelium. If this is slight the products are expectorated, but if severe the alveolar are blocked, the walls are permanently damaged and cheesy degeneration may result. The fibrous layer is sometimes involved, resulting in hyperplasia and ultimately in fibrosis of the affected area. Five cases are reported and the authors call attention to the following points: All were subacute, running a course of from six to eight weeks. The apices presented signs of alveolar catarrh long after the acute process in other parts of the lung had disappeared, and slight fever, anorexia and other constitutional symptoms persisted. The condition differed from tubercular infection in the absence of night-sweats, hemoptysis and marked wasting, and in their early recovery without hygienic or climatic treatment. Bacilli are constantly present in the lungs, and pneumonic processes may be set up by irritation of the alveoli. The authors think that the symptoms in their cases differed sufficiently from bronchitis and broncho-pneumonia to justify their classification under a separate heading. Although examination of sputum was not made they think that the tubercle bacillus is not a necessary factor.

**DECISION OF INTEREST TO DOCTORS.**—A decision of unusual interest to the medical profession has lately been handed down by the United States Supreme Court. In 1878 Dr. Benjamin W. Hawker, a legally qualified practitioner of the state of New York, was convicted of a felony, viz., performing a criminal abortion, and was sentenced to imprisonment for ten years. At the expiration of his time of servitude he attempted to resume practice, with the result that the Medical Society of the County of New York brought suit against him for violation of a state law. His counsel argued that a construction of the law making it illegal to practice medicine after conviction of a felony is unjust and unconstitutional, inasmuch as it in effect adds a new punishment for the crime. The people contended, however, that the state has a right to exact good moral character as one of the qualifications for the practice of medicine. The first trial resulted in a verdict of guilty and the imposition of a fine. The case was appealed and the judges of the Appellate Court decided to set aside the conviction, one judge (Ingraham) delivering a vigorous dissenting opinion. On a final appeal to the United States Supreme Court nine judges confirmed the conviction and sustained the constitutionality of the law, citing many decisions in support of their position. This decision will therefore stand as law for all future time, and will debar any man or woman convicted of a felony from practicing medicine.—*Am. Jour. Surg. and Gyn.*

**FAKE WRITE-UP.**—At a recent meeting of the Chicago Trade Press Association, an organization whose membership comprises the most influential journals in the west, it was determined to take some action to protect manufacturing and mercantile firms from the depredation of the "fake write-up

men." A number of alleged trade journals, several of them being printed in the Southern States, send out thousands of circular letters to merchants and manufacturers, inclosing proofs of ingeniously prepared write-ups. Each person to whom a letter is directed is led to believe that he has been selected because of the prominence of his firm. The men whom it is sought to victimize are informed that no charge will be made for the printing of this complimentary notice, but that sample copies will be sold at 15 cents per copy, or at 8 cents per copy in thousand lots. These journals have no legitimate standing in the community, and represent nothing except the desire of their managers to extort money from business men. The circular letters are so shrewdly worded and the office of publication is usually so far removed from the persons to whom the letters are sent, that many firms have been victimized. Almost every department of industry is represented by one or more reputable journals, and manufacturers and business men generally are advised to communicate with publishers of whom they have some knowledge before being led into fake schemes. The several papers comprising the membership of the Chicago Trade Press Association, of which the *DIGEST* is one, have agreed to print this statement with a view of protecting their patrons and business men generally from loss through such deception.

## AN EPITAPH.

A worthy dentist rests beneath  
 This high-heaped, grassy mound;  
 True man was he, although his teeth  
 Full often false were found.

All obstacles he did despise  
 And often would he brag  
 He rather liked, than otherwise,  
 To run against a snag.

Much suffering did he assuage,  
 His patients lost each pang,  
 Though erst the throbbing tooth might rage,  
 As they his doorbell rang.

His speech was frequent and most free,  
 Right seldom would he pause,  
 Although a master hand was he  
 At holding others' jaws.

He owned no family or clan,  
 But gave all satisfaction,  
 For all agreed that he was a man  
 Of excellent extraction.

He died without a sob or groan,  
 He lived in decent gravity,  
 And now, beneath this mossy stone,  
 He's filling his last cavity.—*Chicago Record.*

**PASTE THAT WILL ADHERE TO ANYTHING.**—Prof. Alex. Winchell, the eminent geologist, is credited with the invention of a cement that will stick to anything. Take two ounces of clear gum arabic, one and one-half ounces of fine starch, and one-half ounce of white sugar. Pulverize the gum arabic, dissolve it in as much water as the laundress would use for the quantity of starch indicated. Dissolve the starch and sugar in the gum solution. Then cook the mixture in a vessel suspended in boiling water until the starch becomes clear. The cement should be as thick as tar and kept so. It can be kept from spoiling by dropping in a lump of gum camphor, or a little oil of cloves or sassafras. This cement is very strong indeed, and will stick perfectly to glazed surfaces, and is good to repair broken rocks, minerals or fossils. The addition of a small amount of sulphate of aluminum will increase the effectiveness of the paste, besides helping to prevent decomposition.—*Jour. of Med. and Sc.*

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## Original Contributions.

### PROF. GEORGE WATT AND THE BRUSH ELECTRIC LIGHT.

BY F. S. CASPER, D D.S., AUSTIN, TEX.

It may not be generally known in the profession, but it is nevertheless a fact, that the late Prof. Geo. Watt, of Xenia, O., if not the original inventor of the brush electric light, at least foreshadowed that invention. Sometime during the session of 1869-70 in a lecture before a class in the Ohio College of Dental Surgery, while illustrating the phenomenon of the giving off of a spark from the positive to the negative pole of a battery, Dr. Watt said, "Now, gentlemen, if any of you are ever enabled to condense charred coal or carbon into the form of a stick, with the end sharpened like a pencil, place one piece in the negative and one in the positive pole, allow the points to come near to each other, and you will have the most brilliant light ever known." The echo of his words has been in my memory ever since. There were twenty-six in the class, including Drs. H. K. Lathrop, J. E. Cravens, Van Antwerp, Allison, Arrison and others who will no doubt remember the above.

### MAKING GOLD FILLINGS OUT OF THE MOUTH BY THE IMPRESSION AND MATRIX SYSTEM.

BY R. M. CHASE, D D.S., BETHEL, VT. READ BEFORE THE VERMONT STATE DENTAL SOCIETY, AT ST. JOHNSBURY, MARCH 21-23, 1900.

The making of gold fillings out of the mouth would at first thought perhaps seem a little strange, yet my excuse for being somewhat enthusiastic in this line of work is justified by the results obtained thus far in practice. Any means whereby the burden of tooth-filling can be lessened to both patient and operator, without losing the artistic effect and permanency of the operation, seems to me both justifiable and commendable. In the special field for which this work is designated it has given pleasurable satisfaction;



pleasurable because of the less tedious waste of time and vitality of both patient and operator, overcoming many annoying perplexities incident to the filling of inaccessible and large cavities. The preparation of cavities for porcelain inlays has been so thoroughly given in the recent dental journals that a repetition is unnecessary, as the details given apply equally well to gold inlays so far as preparing the cavity is concerned, remembering, of course, that gold has a wider field, and can be utilized to a greater extent, fully restoring broken and decayed molars to usefulness where porcelain would be impracticable.

When there are large undercuts, as is often the case in the crown of molars, cut away all thin edges of enamel and excavate thoroughly. If the cavity is deep, cover the floor of the cavity and all undercuts with some good non-irritating cement, varnish the same with sandarac, and in a short time the cement will be hard enough to trim, leaving the side at right angles to the floor of the cavity. This applies to the shaping of crown cavities where decay has progressed rapidly into the dentin, and you wish to save as much as possible of the occluding surface. The labial cavities of the anterior teeth and the buccal cavities of the bicuspid and molars will not as a rule require any preparation with cement, as the shape of these is usually larger at the orifice. Approximal cavities of incisors and cuspids should be cut away and properly shaped from the palatal and lingual sides. Approximal cavities of the bicuspid and molars should be so formed that they will present a pyramidal shape with the base of the pyramid at the occluding surface. The object of this shaping of the cavities is to facilitate the withdrawal of the impressions.

The impression compound which I use is the result of a long series of experiments in this line of work, and it fills a long-felt want not only for the making of matrices for gold and porcelain inlay work, but for reproducing the exact shape of the crowns and roots of teeth for crown and bridgework. When ready to take the impression, carefully dry and protect the cavity from moisture, and with a small piece of the compound between the thumb and index finger force the material into the cavity, using enough force to make sure that the compound occupies every part. Gently withdraw it and examine to see if you have a perfect impression of the shape, angles, sides and edges of the cavity. When you can use an impres-

sion-cup it is advisable to do so. If there is any tendency of the compound to adhere to any part of the cavity, a little lycopodium sprinkled upon the surface of the compound will obviate any trouble in that line. Around the impression place a small band of very thin German silver, copper or platinoid. This band should be at least an eighth of an inch larger than the cavity impression and about one-half inch high. Be careful when placing it that you do not disturb the impression. The edge of the band should be pushed into the compound, so that there will be no chance for the alloy to flow underneath. The impression is now ready and a matrix can be made with fusible alloy.

As soon as the alloy is poured into the band onto the impression, tap the impression-cup gently on the table, or when the cup has not been used, the compound should be held in a napkin or tissue paper, as in the act of taking the impression between the thumb and finger, the napkin will prevent burning the fingers should any melted alloy escape. The tapping can be done with the hand until the alloy begins to set. This will insure a sharp reproduction of the edges of the cavity, and a little practice will enable you to do it easily.

After you have produced a matrix imbed this in a little plaster-of-Paris, either on the bench or on something that will make a firm foundation, or fasten in the bench vise and proceed to fill with gold, or dismiss patient and make the filling at your leisure. Gold foil pellets, ropes of fibre gold can be used for making inlays, holding with an instrument until you get it well anchored, or if the shape of the cavity is such that it may start, one or two retaining pits can be made at the bottom of cavity; burnish thoroughly and partly finish the filling in the matrix. To remove filling hold the matrix over a spirit-lamp and so soon as the alloy melts a little from edge of inlay, give the matrix a quick jerk and the filling will come out clean and a perfect inlay to the tooth cavity.

In building up a bicuspid or molar, after the cavity is prepared, mould a little wax into the cavity and ask your patient to close the mouth. This will give the articulation of the opposite tooth, which placed in the matrix and arranged on an articulator will enable you to complete the occluding surface without any subsequent grinding; when placed in the tooth cavity, make slight undercuts with a wheel bur at the sides, also some little depressions in the base of the inlay. Use any good cement, mixed to a creamy consistency.

Before the final adjustment of the inlay try it in the cavity and see if it fits perfectly at the edges; if it does not, a perfect fit can be secured by holding the filling with an instrument and burnishing it to the edge of the cavity. Fill the cavity with cement and force the inlay into place, holding it firmly for a few moments, and then coat the edges with sandarac varnish. After a short time it can be finished up or left for a subsequent sitting.

It may seem to you that it must take a long time to make these fillings. I can say only that you will be surprised, after becoming familiar with the method, to see how quickly you can make them. You will find the impression and matrix system equally as good for porcelain inlays, and you will get positive results by burnishing the foil into the matrix, and if you do not get a perfect inlay the first time you can duplicate it without access to your patient.

### PORCELAIN INLAY.

BY H. BURBRIDGE, D.D.S., WOODSTOCK, VT. READ BEFORE THE VERMONT STATE DENTAL SOCIETY, AT ST. JOHNSBURY, MARCH 21 23, 1900.

Up to the present time nothing has ever been introduced to the profession for the filling of cavities in the natural teeth that in any sense of the word produces an artistic result. The choice so far is gold, the excellent qualities of which cannot be denied, but from an esthetic point of view it is sadly at fault. How often do our patients say, "Will the gold show?" Now, if our work were of the highest type of art, and the material did show, there would be no need of the question, as it would not show, for being the highest type of art it would conceal itself. Therefore, with the advent of porcelain in such forms that it can be handled by almost any dentist who will take the pains to master the fundamental principles, this main objection has been removed.

As is not generally known, the making and inserting of a porcelain inlay consists of the following steps: 1. Preparation of cavity. 2. Adaptation of the platinum or gold form in which the porcelain is baked or melted. 3. Investing of gold or platinum form; packing and melting of the powder or paste. 4. Finally, removal of the form from the finished inlay and cementing in place of the same. Let us therefore consider the proper manipulation of the various steps. For the simplest form let us conceive a cavity oblong in shape, with flaring walls and the floor perfectly smooth, with no re-

tentive points. Especial care should be given the margin of the cavity. It must be as clearly cut and perfect as is possible for human agency to make it, or the work will be a total failure. This may be accomplished by the aid of small stones, diamond points or finishing burs.

The next step is the making of the platinum or gold form. This is conceded as the most difficult part of the whole operation, as on this fitting accurately depends the success of the finished piece of porcelain. In accomplishing this I prefer rolled gold, No. 30, it being softer and more pliable than platinum. I take a piece larger than the orifice of the cavity, then with a round smooth burnisher gently rub the gold upon a piece of soft, smooth and clean cork, depressing it in the centre to the approximate size of the cavity to prevent tearing the gold in carrying it to the bottom of the cavity. After which I anneal and place it in the cavity and pack it tightly with small balls of cotton or spunk, repeatedly burnishing the edges and annealing as often as required. Being satisfied that the form fits accurately, I take a small piece of white wax which is slightly warmed and press it into the cavity with a flat burnisher. If it is an approximal cavity, involving labial and lingual walls where the burnisher will not do, I select an ordinary polishing strip (one of the finest, wide enough to entirely cover the cavity), putting the smooth linen side next to the wax, and pull the wax into the cavity, using care in not drawing the tape in one direction or the other, but with a steady pressure forcing the wax into all parts of the form and avoiding a surplus of wax beyond the margin. The form can now be removed with very little danger of getting it out of shape.

After that I imbed the form in an investing material which will stand the heat and can be dried quickly without cracking. Then warm the investment over a spirit-lamp, and as soon as the wax warms a little take it out, not allowing it to melt. Next wash out the form with alcohol in order to remove all traces of the wax; then as a further assurance of this result I place the investment in the furnace and bring it to a red heat.

After cooling it is ready for packing with the porcelain paste. Care must be taken in packing the paste so that it will not shrink away from the margins. I generally make at least three bakings, sometimes more, according to the case. Having selected the proper

color or colors necessary, I mix the powder either with gum water or distilled water (preferably the gum-water, as you can then carve it up better to shape if necessary) to the consistency of thick cream, with which I cover the bottom of the matrix, letting it run up nearly to the margin. Then tap with an instrument to bring the water to the surface and absorb with a piece of clean linen, continuing to tap until the paste is closely packed down and all the surplus water absorbed. Now with a small camel's-hair brush remove the center of the paste, leaving just a ring around the margin, for if this is not done it will shrink toward the largest mass of its own body, which is the center, but this center has been removed, therefore it shrinks toward the circumference.

Then place it at mouth of furnace and turn on current, passing the investment in as it heats up until it is carried to the back of furnace. The first baking should be thorough, as this will not move in subsequent heatings unless carried to an extreme. The next packing should fill the matrix even full. Proceed as before, tapping and absorbing the water with linen. At this stage of the manipulation care should be taken to remove all particles of paste that overhang the margin of the matrix. If this is not done the margins will be ragged, and there will be small bubbles. A perfect margin is the most essential feature of a porcelain inlay.

After the second baking there may or may not be a shrinkage, according to the fineness of the powder or care in the packing of it. If there should be any shrinkage, add sufficient to supply the deficiency, wherever it may be, and bake again. This can be repeated any number of times, according to the requirements of the case at hand. After the last baking it is better to leave the inlay in the furnace to cool, as sudden changes of temperature may cause fracture of the finished piece. When cool enough to handle, the gold may be stripped off, commencing at the margin all around with a pair of pliers to prevent marring the edges, and when once free of the margin it can be pulled away without danger.

The walls of the inlay should have fine grooves cut in them to assist in the retention. (If possible these should not be opposite to one another, as in small inlays they would tend to weaken it.) This can be done by fine diamond disks, which are kept wet when cutting.

It is obvious that the cementing of the inlay is a very important

matter, as it will affect the color by many shades, generally rendering it darker. Any four-color high grade cement that will mix thin without deteriorating in strength will answer. Gray and white are the colors that will match the majority of cases. Mix the cement somewhat thinner than for filling. The cement should be thoroughly smeared over the walls of the cavity and inlay. Carry the inlay to place with small wedges or points of orange wood. Pressure should be maintained if possible until the cement has nearly hardened. I find it better to wait until a subsequent sitting to remove a surplus of cement, also to examine and complete the operation.

A few considerations in regard to details may not be out of place. The inlay will go to place better if a double thickness of gold is placed in the bottom of the cavity. Never bevel the margin of the cavity to any extent, as it will be very liable to fracture, being thin, if much pressure is applied when cementing to place. In all approximal cavities it is better to choose a lighter shade than the tooth, as the inlay is not translucent like the tooth itself but is opaque, making it look darker.

In order to get the best results from cements obtainable at the present day it is necessary to incorporate as much of the powder with the liquid as possible. Now, this cannot be done in the setting of an inlay. As I said before, the cement must be mixed somewhat thinner than for filling; we necessarily deprive it of an important part of constituency. Again, it is my firm belief that what is required is a cement that is clear in color, for no matter how perfect the color of the inlay, any cement with a semblance of color will act as a cloud coming between the tooth and inlay, thereby increasing the opaqueness. And it will not be until we can produce an inlay having the same translucency as the tooth itself that we shall attain the highest type of the art.

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### CHRONIC CASE OF EMPYEMA OF THE ANTRUM.

BY S. D. HODGE, D.D.S., BURLINGTON, VT. READ BEFORE THE VERMONT STATE DENTAL SOCIETY, AT ST. JOHNSBURY, MARCH 21-23, 1900.

In this case, of a prominent clergyman, aged 56, the antrum affected was on the right side.

There is one point in the etiology of diseases of the antrum on which there is unanimity of opinion; it is not an idiopathic affection.

Most of the dental text-books give dental caries, periostitis, injury and abscess of the roots of the teeth as the cause. I think that most dental practitioners are of the opinion that nearly every case can be traced to these sources. On the other hand, most rhinologists of to-day, while giving diseases of the teeth as the cause of the majority of cases of antral trouble, are of the opinion that a good percentage of cases are of nasal origin.

So far as I know, every one who has been connected with this case is of the opinion that the cause of the antral trouble was chronic nasal catarrh of many years' standing, and that there was empyema of the antrum for a long time before it was suspected that it was involved. You will readily recall the fact that the antrum is only one of a series of accessory cavities, and that the orifices by which the frontal, anterior ethmoid and antral cavities communicate with the nasal chambers are close together, so that pus or a purulent discharge from one of these sinuses might easily find its way into the antrum, infecting that.

Empyema of the antrum is usually preceded by a catarrhal inflammation, and with the access of microorganisms assumes a purulent character. In this case there was a general impairment of the vitality of patient. There was very marked anemia; lips, ears, eyelids were bloodless. You could almost look through the hands, and the liver and kidneys were inactive. This condition of active toxemia was very marked for two years before trouble with the antrum was discovered, and so grave was the condition of the patient at the time of the opening into the antrum that there was great anxiety lest general systemic infection should follow the operation.

About two years before trouble with the antrum was discovered the right superior bicuspid had been crowned with a Logan. It was an excellent piece of work in every respect, and had done good service for something like eight years, when the post of the crown broke. I drilled out the broken post and put on a new crown. This was worn with entire comfort for something over a year, when the root split. The patient was at this time ill at a hospital, and as the root began to abscess it was taken out Christmas day, 1896. This healed without any trouble.

For many years the patient had been troubled with severe headaches, the pain being in the frontal region. The usual symptoms of antral trouble were absent, and the teeth and gums were in a healthy

condition, no alveolar enlargement. About August, 1897, there was a sense of distention and weight in the upper jaw. He went to Montreal and placed himself under the care of Dr. C. Zaugg. August 10, 1897, Dr. J. H. Bourdon of Montreal extracted the right superior first molar, and Dr. Zaugg opened into the antrum, following the socket of the palatine root of the first molar. Cocain was used in this operation, the patient not desiring to take an anesthetic. His condition was such that it was thought best to pursue a conservative line of treatment and not attempt any radical operation; making simply an opening for drainage, using antiseptic washes, and building up the system, believing that with increasing vitality both the antral and nasal trouble would be brought under control. Upon opening into the antrum a large amount of pus was found. This was washed out with a saturated solution of boric acid.

About a week after the operation the patient came to my office, and a plate was made to hold a silver drainage tube in position, which was worn till November 23, when Dr. Bourdon made another plate, using a different shaped tube. This plate was clasped to the second molar and first bicuspid. In October, 1897, an operation was performed by Dr. Zaugg, removing hypertrophied tissue from the middle turbinal, left side, by cautery. In April, 1898, he removed a large mass of hypertrophied tissue from inferior turbinal, right side, using the cautery. Much relief was given by these two operations.

There had been a gradual improvement in the condition of patient from time of first operation of opening into the antrum in August, 1897, till the summer of 1898. He then began to be troubled with violent headaches, the pain being most severe in the frontal region, and the general condition began to grow worse. Dr. Zaugg came to see him August 29, 1898. The patient was suffering intense pain and had a high fever. Examination showed the membrane covering the middle turbinal, right side, greatly congested, and so great was the congestion of the tissues that the passage was nearly closed, almost filling the space between the middle and inferior turbinated bones. This was immediately relieved by the application of a four per cent solution of cocain. The nasal condition was so severe as to give rise to a painful attack of trifacial neuralgia. Heroic doses of quinin and codein were given for six days. The congestion and pain were relieved, and the following



week patient went to Montreal and Dr. Zaugg cut away the hypertrophied tissue from middle turbinal, right side, by snareing.

It was thought best at this time to take out the first bicuspid, which was done by Dr. Bourdon, who made a new plate, and a new drainage tube of gold was used. There has been a marked improvement in every respect since these operations. The general health has improved, no further headaches, and the discharge from both the antrum and nasal passages less in quantity and less purulent. A little later another plate was made by myself, using the same drainage tube; this is the one patient is now wearing. It is clasped to the second molar and the cuspid. Many different solutions have been used to wash out the antrum. After the first operation boric acid, saturated solution, alone was used; peroxid of hydrogen ten per cent was used for some time; carbolic acid solution two per cent; resorcin one, two and three per cent; hydrozone fifty per cent, followed by glycozone; glyco-thymoline twenty per cent; tr. calendula two per cent.

From the time of the first operation in August, 1897, until September, 1899, the washing out of the cavity had been done principally by the patient, two or three times daily, the syringing being done through the drainage tube, and every week coming to my office to have the plate and drainage tube thoroughly cleansed. In September, 1899, we commenced the use of protargol, taking out the drainage tube every day and thoroughly irrigating the antrum through the opening in the alveolar process. The protargol was at first used one-half of one per cent solution, but later about one-fifth of one per cent, followed by a mild solution of Wampole's Formalid. The protargol was used for about four weeks daily, and since that time has been used occasionally, when there is much catarrhal discharge. We are now washing out the antrum, removing the drainage tube four or five times a week, using a mild solution of formalid. The patient washes it out daily through the drainage tube, using a solution of boric acid or chlorid of sodium.

Numerous bacteriological examinations of the discharges from both the antrum and nasal passages have been made. Streptococci and staphylococci and pus cells have been found in every examination. The most interesting microscopical examination was one made at the Vermont State Laboratory of Hygiene, Feb. 4, 1899, which is as follows: Growth reddens litmus; ferments Smith solution;

grows with gas production in gelatin stab; gives indol reaction with Dunham's solution; bacterium is *B. coli communis*; pathogenic for guinea-pig in nine days. I think that this bacillus has not been found since.

The condition of the patient to-day is that of returning health and vigor. In washing out the antrum, the water as it comes away is usually clear, showing but little discharge. There is considerable discharge from the nasal passages. The last microscopical examination made a few weeks ago showed the same bacilli in both antrum and nasal passages. Transillumination of the antrum shows slight hypertrophy in one or two places. No trace of caries of the bone can be found. It is my opinion that if the nasal passages were in a normal condition, it would be safe to take out the drainage tube and close up the antrum.

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### AMALGAM ALLOYS AND THEIR USES.

BY G. E. HUNT, D.D.S., INDIANAPOLIS, IND READ BEFORE THE VERMONT STATE DENTAL SOCIETY AT ST. JOHNSBURY, MARCH 21-23, 1900.

The tendency of the age is to exactness. There is a fascination in figuring to ten and twenty thousandths of an inch that is difficult to resist. Most of those who talk so glibly of such measurements have little appreciation of the accuracy and delicacy of manipulation necessary to successfully make measurements of such minuteness. The writer seriously doubts whether the micrometers from which the published reports of alloy tests were made are capable of measuring a ten-thousandth part of an inch with exactness, but their work is sufficiently accurate to give very correct notions regarding many things relating to amalgam alloys. Broadly stated, we may sum up the results as follows: First, it is possible to produce an alloy which, when amalgamated and packed in a certain way, will practically neither shrink nor expand. Second, crystallization of the molecules of such an alloy will take place very shortly after incorporation of mercury.

In regard to the first statement, let me make the assertion that there is no perfect formula. No one will ever be able to state a formula for an alloy that will give the desired results in the hands of all makers, whether they are experienced or inexperienced. Of course skilled metallurgists, who are daily employed in studying and working with such alloys, will come nearer getting uniform

results from a given formula than those not so employed, but the personal equation is certain to enter into the problem sufficiently to make my assertion a truth. The manner and method of smelting, the precautions taken against oxidation, the length of time the smelt is roasted, the temperature at which and the manner in which it is poured, the condition of the molds, the after-treatment of the ingot, and finally, the annealing of the cut product, all matters absolutely under the control of the operator, have each a bearing on the final result. What will be a formula resulting in the least change in the hands of one maker may, under slightly different manipulation by another man, prove a failure, while maker No. 2 may get results with another formula that maker No. 1 is unable to duplicate. This may sound like a splitting of hairs, but it is a fact—and splitting hairs is necessary to satisfy the extremists of to-day. So I will not attempt any comment on formulæ at all, nor will I enter the broad domain of methods in alloy making. These subjects are better left to the conscientious metallurgist who is qualified by education to cope with them. The dentist is no more fitted by training and experience to make alloys than he is to make gold foil or cement. The technique of these latter operations is as accessible as that of the former, but only the skill and experience that comes from knowledge and constant practice can bring about desired results in the manufacture of any of the three. Of more moment to the practitioner is the choice of an alloy and its manipulation.

The alloys offered for the use of the profession to-day may be roughly divided into quick, medium and slow-setting. The time required for crystallization may be modified to some extent by the manufacturer, but it is not entirely within his control. The formula used very largely governs the rapidity with which the alloy sets. It is claimed for the quick-setting alloys, and very justly, that they show less shrinkage, greater resistance to a crushing force and less "flow" or change of form under pressure insufficient to crush the mass. The objection to their use is that they set very rapidly, and in the hands of many this objection is almost an insuperable one. The medium-setting alloys will shrink some, but they give time for care in making the filling, and enable the operator to work with greater deliberation. The slow-setting alloys, those which take from one to five hours to set, shrink even more and are gradually passing out of use.

The question of the point at which an amalgam crushes is of little interest to me. I never saw an amalgam filling crushed in mastication, and I never heard of such a catastrophe. The amount of flow or lateral movement under repeated impacts *is* of interest. It is almost certain that very slow-setting alloys are sufficiently soft to creep or flow under impacts. This tendency is largely due to the amount of tin they contain. A medium-setting alloy can be made that will contain enough silver to minimize this flow so that it is of little moment. The amount of flow under a steady pressure is of no importance unless it be proven that there is a relation between the figures so obtained and those obtained by measuring the flow produced by repeated impacts. Engineers know that even chilled steel will flow if sufficient weight be put upon it for a sufficient length of time. Movement of the molecules of any metal will take place under the proper combination of sufficient time and weight; but no amalgam filling in the mouth is ever subjected to a continuous weight of two hundred, or fifty, or even five pounds. The flow there must be brought about by repeated impacts, if at all.

So the choice of an alloy rests between the quick-setting ones which have a minimum amount of shrinkage, or perhaps some expansion, and medium-setting ones which have a little more shrinkage and set slower. Which shall we use? In my opinion, each operator will have to decide that question for himself. It all depends on the man. I have seen many fillings made by good operators from quick-setting alloys that were very poor fillings. I have seen fillings made from quick-setting alloys that would permit of a large party of microbes dancing quadrilles between the dentin and the porous material that had begun to crystallize before the operator placed it in proper position. I have seen fillings made from quick-setting alloys that I am sure will not preserve the teeth as well as if they had been made with a slow-setting alloy, even if it did shrink a little. But this does not prove that the quick-setting alloys are bad. It proves only that a great deal depends on the man who makes the filling. Many operators will never make successful fillings with the quick-setting alloys. When an amalgam begins to crystallize, disturbance of its molecular arrangement must be attended with disaster. The operator who is unaccustomed to this class of filling material will endeavor to use it when crystallization has begun, will note the friability of it, and will discard it with the

complaint that it has "poor edge strength," when the whole fault lay in his manipulation. These are not fancies, they are facts. The manipulation of quick-setting alloys must be studied and mastered before they can be used with success. No operator can change from years of use of cohesive foil and make successful fillings at once with soft gold. Many operators *never* learn to make good fillings with soft foil or tin. And so it will be with quick-setting alloys.

The medium-setting alloys *have* saved teeth in the past. The record of several decades of clinical experience proves that teeth can be and have been preserved by their use. Investigation by means of the micrometer has proven that they shrink, some more and some less. Clinical experience proves that they save teeth. They may do it in spite of their badness instead of on account of their goodness, but they save teeth. You may be sure that a filling well made with a medium-setting alloy will give better clinical results than a filling badly made with a quick-setting alloy. Much depends on the operator. An alloy is often condemned when the fault was in the preparation of the cavity and the insertion of the filling. When the gold filling of these same operators fail they attribute it to "poor tooth structure."

In my opinion, every alloy filling would be better if malleted to place. If it is not malleted, every piece of amalgam should be condensed with a pressure of from seven to ten pounds. The next time you buy a steak take your lead pencil and, holding it as you would a plugger, make pressure on the spring-balance scale on which your meat is weighed, and see what ten pounds of pressure means. If you are not condensing your amalgam fillings with that amount of pressure you are not making them as nearly perfect as you can. And if you will put a small pledget of bibulous paper over each piece of amalgam as you place it in the cavity, and mallet the mass thoroughly, you will be making a still better filling. The bibulous paper serves the two-fold purpose of preventing any chopping up of the amalgam and of taking up any free mercury that the malleting may bring to the surface. When a piece of the mix is placed in the cavity it should be carried straight before the plugger point until thoroughly condensed. For this work broad, flat, shallow-serrated points are best adapted. The round ball burnishers so frequently used in working amalgams are not well fitted for the purpose.

If a medium-setting alloy is used, all excess mercury should be

wrung out and the amalgam used as dry as it is possible to get it. This is best accomplished by using a piece of drilling or fine meshed linen. The mix is placed in the middle of the piece and the ends tightly twisted. It is good finger exercise if you get the mass as dry as you should. With the quick-setting alloys such a procedure is impracticable. The time spent in wringing out the alloy and the greater rapidity of crystallization imparted to it by the small amount of mercury left in it, are almost certain to cause it to partially set before it is used.

If the following rules for making an amalgam filling are carried out the result will more often correspond with the desires of the operator. First. Prepare the cavity just as you would for a gold filling, except that bevelling the margins is advisable. The same care devoted to the preparation of the cavity that is given to one designed to receive gold will alone vastly increase the percentage of successful fillings. Second. Never put an amalgam filling in an occluso-proximal cavity without a matrix. The best amalgam filling can be inserted only when the cavity has four walls against which to pack the material. If one of the tooth walls is broken down, its place must be taken by a matrix if the desired results are to be obtained. Third. Use enough mercury to make a homogeneous mass that does not readily crumble under the finger. If the alloy is a medium-setting one, wring the mix out strongly, leaving it as dry as possible. If a quick-setting one, leave enough mercury in the mix to enable you to fill the cavity before perceptible crystallization occurs. This amount can be determined only by experience. Fourth. Place small pieces one at a time in the cavity, condensing each piece before adding another. Good amalgam fillings cannot be made by "wiping" the alloy into the cavity in one large mass. Condense with broad, flat-faced, shallow-serrated pluggers by placing the point either directly on the alloy or on bibulous paper covering the alloy, and carrying that portion of the mix directly before the plugger point until it is condensed. The plugger is then placed on another part of the mass and the performance repeated. Chopping up the alloy by repeated jabs at it, as in condensing gold, is harmful. Heavy pressure with hand instruments, or preferably, malleting, will give the best results. Fifth. Finish every filling with the same care that is bestowed on gold fillings. No matter how well the cavity is prepared or how well the filling is

inserted, a bad finish at the cervical margin will cause it to fail in a short time. Sixth. Charge more for your amalgam fillings. Your patient will appreciate them more highly and you will make them better. "The better the pay, the better the deed."

**ELECTRICITY FOR GERMS.**—It is reported that a Vienna dentist has discovered a means of killing bacteria in a human body by a current of electricity so weak as to be barely perceptible.—*Med. Age*.

**DANGERS OF PLUGGING THE NASAL FOSSÆ.**—M. Guisez (*Gazette des hopitaux*) says that the use of Bellocq's sound is difficult in nervous persons and children and often brings about undesirable results. 1. A man, aged twenty-two, who had suffered at intervals since fifteen from repeated hemorrhages from the gums and nose, had severe epistaxis from the right nostril. Anterior and posterior plugging were performed and renewed in three days. Three or four days after the second plugging there was great edema of the right eyelid with great swelling and pain in the right side of the face. The temperature was 102.2° F. An empyema of the antrum had occurred. 2. A woman of alcoholic tendencies suffered from epistaxis. Double plugging was applied. Two days afterward severe pain occurred, due to slight otitis, no doubt caused by the plugging. The nasal mucous membrane, he says, owing to its numerous folds and recesses, is difficult to sterilize, and the presence of septic clots is exceedingly prone to set up suppurative otitis and empyema of the maxilla. Anterior plugging only should be employed, and if necessary the thermocautery should be applied to the bleeding vessel, which is usually a terminal branch of the sphenopalatine artery.—*N. Y. Med. Jour.*

**SALIVA AND ITS INFLUENCE ON GASTRIC DIGESTION.**—Martin Cohn says the alkalinity of the saliva varies in different individuals and in the same individuals at different periods of the day. The average corresponds to a 0.0154 per cent solution of caustic soda. He never found an acid reaction, such as was noted by Sticker in the interval between breakfast and dinner. It has been suggested that retained products of metabolism may be got rid of by increasing the salivary secretion, but the author was unable to discover any evidences of such vicarious elimination in cases of renal disease. The digestive activity of the saliva does not cease with deglutition, but is continued for a time in the stomach. As has been shown by Van der Velden, there are two stages of stomach digestion. In the first the acidity is not sufficient to inhibit the saccharific action of the saliva (amylolytic stage), but in the second this action is arrested by the increased secretion of hydrochloric acid (proteolytic stage). It has been asserted by Sticker that the saliva has an influence also in the digestion of albumin, but Cohn does not think the experiments offered in proof of this assertion are conclusive. His investigations led him to the conclusion that the presence of saliva in the stomach is beneficial, but he was unable to determine that its presence was of extreme importance in digestion or that its absence impaired the process very materially.—*Deut. Med. Woch.*

## Digests.

**DENTIGEROUS CYST IN A HORSE.** Dr. M. S. Hoover, Perry, Iowa. This is a form of lesion which is rarely found. Lately I met a veterinary surgeon who gave me the following account of a multi-molar dentigerous cyst in a filly about two years old. She was brought into the barn, and he discovered a running sore at the butt and in front of the right ear. This was opened up and two teeth were found and removed. They were about one and one-fourth inches long and three-fourths of an inch in diameter. The ulcer did not heal up, and it was examined again and another tooth removed; this was about four weeks after the first operation. In about three weeks a third operation was performed and a fourth tooth removed. Some six weeks after this last operation, while being led out of the barn, she fell dead, and a little work with knife and chisel disclosed the fact that a remaining tooth had been pushed, or on developing had migrated upwards and penetrated the floor of the cranium, projecting into the cranial cavity one inch, but covered by the lining membrane of the cranium. Another tooth was found, but it did not produce any pressure on the brain.—*Items, July.*

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**STOMATITIS MATERNA.** By George Little, M. D., Crawford, Ga. I report a case of sore mouth of a nursing woman (stomatitis materna) which I treated with sulphate atropia with signal success. The mother was apparently in perfect health, her little infant was two months old when she was seized with a severe chill, the reaction was high and prolonged, tongue, mouth and fauces felt as though they were scalded, saliva was very profuse, hot and scalding in its sensation. Aphtha soon appeared on the gums and tongue. It was obvious that I had to deal with a violent case of nursing sore mouth. All literature, with its treatment, was rather unsatisfactory—so had been recent results in this neighborhood.

I thought of antagonizing the physiological effects or symptoms of the disease, and at once took belladonna as my agent. I gave one-sixtieth grain sulphate atropia every four or six hours, and the result was almost magical. The first dose gave great relief, and the second stopped the excessive and annoying flow of saliva, which relieved patient of the intolerable burning sensation, as though the



mouth had been scalded. My local application was ten grains nitrate of silver to one ounce water, applied extensively with a camel's hair pencil.—*Med. Brief.*

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#### DOOLEY'S VISIT TO A MEDICAL SOCIETY MEETING.

Well, afther a long innin' on diphthery, one docthor gets up an' rades off a paper all about how some animal called a sarkooma gets on a woman an' is loike t' kill her, whin he, brave man, takes a 'lecthric light carbon an' puts in th' Virginia, an' so burns th' baste out. "Fwat's the Virginia?" says I to Doc. "Luk in yer jography, ye innocent bachelor," says he. Will, afther the woman was saved from th' sarkooma ('twas too bad) she takes down wid cancer an' does. 'Twas discouragin' t' th' docthor. Afther he'd finished, they called on a foine, bloomin' docthoress, wid thray pigeons in her bonnet (which, mark yez, Donohue, is a sign av distinction) an' she says (after throwin' a few bookays, like, at th' presidint) that she is too tender-hearted t' use 'lecthric wires on pape, so she always sends her 'lecthric works out an' has it done be th' day. Thin a big man wid a smooth head rades off a paper too, an' 'twas a moity foine paper, for before he got through, two or three av th' docthor-esses was so overcome be th' illoquince av th' man, that they fell asleep. Thin the presidint says he wants a big attendance nixt toime, as he ixpicted some big guns av docthors t' be there from Cincinnati. It must be turr'bly dhry wur'rk radin' all thim papers, Donohue, fur afther the matin' was over, me an' Doc sthopped in down sthairs for a shmoile, an' bedad, if there wasn't half th' shpeakers av' th' av'nin' shmoilin' too. Which proves that a midical sassiety meetin's a good place t' go to.—*Chicago Med. Times.*

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**HEAT-STROKE AND SUNSTROKE.** It is contended by Dr. Moussoir, a French naval surgeon, that these are two diseases and not one and the same, as has been hitherto supposed. In the *Archives de Méd. Nav.* Dr. Moussoir claims to be the first observer to establish this fundamental distinction; and contends further that his discovery may result in a large saving of human life. He says, as abstracted in *The Lancet* (March 31): "Heat-stroke is a pathological condition produced by the action on the whole surface of the body during a sufficiently prolonged period of a temperature exceeding 104 deg. F., whereas sunstroke is a pathological condition pro-

duced by the action on the cranium during a period, which need not necessarily be long, of sufficiently intense solar radiation. The high temperature which gives rise to heat-stroke may be either moist or dry and may emanate from any source. Moist heat, as in a stoke-hole on board ship, brings on heat-stroke by preventing the evaporation of perspiration, while a dry heat, by shriveling up the skin into a parchment-like substance, prevents the exudation of perspiration, and most probably also produces an analogous condition in the pulmonary alveolar tissues. Heat-stroke causes its ill-effects through the superheated blood, which reacts on the nervous centers. It comes on gradually, but may simulate suddenness when the will power by which the subject was sustained is abruptly withdrawn. Stokers are able to endure a damp, hot atmosphere in narrow, ill-ventilated spaces because they work naked or nearly so, whereas soldiers on duty in the open air succumb to heat-stroke because the caloric increases beneath their thick clothing, which also hinders the evaporation of sweat.

"Sunstroke, or insolation, is not induced by high temperature, but by the intense radiation which the sun alone, owing to its enormous volume (1,200,000 times that of the earth), can supply, the chemical rays, the vibrations of which are more rapid and therefore more penetrating than those of their calorific and luminous congeners, being the exciting cause."

The French physician notes that the chemical rays of the sun can pierce white clouds freely, but are arrested by black substances and partially so by red, and he applies these facts to explain the immunity from sunstroke of negroes and people with swarthy complexions, and the diminished liability to it of the ruddy. He says:

"To produce sunstroke the rays must impinge upon some part of the brain-case, the effect being transmitted thence to the as yet unlocated heat-center by reflex action. The process precisely resembles what goes on when a perspiring scalp is exposed to a draft and sneezing coryza and other reflex phenomena quickly ensues. Covering the head preserves from sunstroke, but just as is the case with thick clothing, a helmet can assist only in the development of heat-stroke. The mean of a series of observations with suspended thermometers showed that the temperature inside a regulation helmet was 10 deg. C. higher than in the shade of a veranda. In heat-stroke the disease begins by heating the blood, but in sunstroke this condition of the circulating fluid is secondary; the fact, however, that in both affections the blood becomes superheated serves to explain the resemblance of the symptoms. Sunstroke or insolation can occur only within the tropics, because in that region alone the sun's chemical rays are sufficiently intense to produce the necessary reaction."

*The Lancet* admits that the doctor has established a *prima facie* case for his contention, but it does not approve of his remarks on the treatment of the disease. He insists upon excitation and antipyrin, with ice, cold affusion, and "the rest of the stock remedies as usually recommended," but discards quinin. To quote the final paragraph: "Among the predisposing causes of heat apoplexy Dr. Moussoir mentions the horizontal position, contending that the heat-rays both direct and refracted from the ground, have thus a much larger surface to act on. This would seem to supply an argument against the Indian practice of taking a siesta during the heat of the day."—*Literary Digest*.

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WARTS: SHOULD WE TREAT THEM? H. Fournier (*Progrès Méd.* April 7) considers the etiology and treatment of warts, which he divides into the common warts and the plane warts of young people. These often occur simultaneously and probably result from the same source—inoculation of some sort upon a predisposed individual. The differentiation is more apparent than real, and classical descriptions by dermatologists tend only to increase the confusion. However this may be, the question of predisposition has been confirmed by several authorities. Barthelemy has seen cases in which common warts occurring on the soles, palms, between the fingers, and on the face, coexisted with vegetations.

As to treatment, cases are on record which have been cured by suggestion. Warts may disappear on suppression of one or several of them, a fact which Diday had already determined with reference to condylomata. Excision or even incision of one wart brings about a disappearance of its neighbor. Accidental contusion of neighboring parts has been known to cure warts. Superficial applications of silver nitrate sometimes will do the same. Warts may disappear of their own accord and without any treatment whatever. Djamdjieff holds the same view with reference to plane warts.

The main inducement, however, to treatment resides in the manifest contagiousness of warts, which had been previously denied by Kaposi. Warts are not only contagious as between different individuals, but also especially autoinoculable (men have isolated a form of microorganism special to warts).

Fournier recommends to proceed in a systematic manner. He fears a possible relationship between warts and cancer, and deprecates the loss of time entailed by suggestive therapeutics. He advises

to begin treatment with the larger warts and continue with the smaller ones if required. He notices the various means at our disposal: chemical cauterization, medicated collodions, etc., but gives preference to abrasion, excision, raclage, and the galvanocautery, and further recommends an additional course of constitutional treatment for neurotic patients, the chief element of which he finds in hydrotherapeutics.—*Med. Age.*

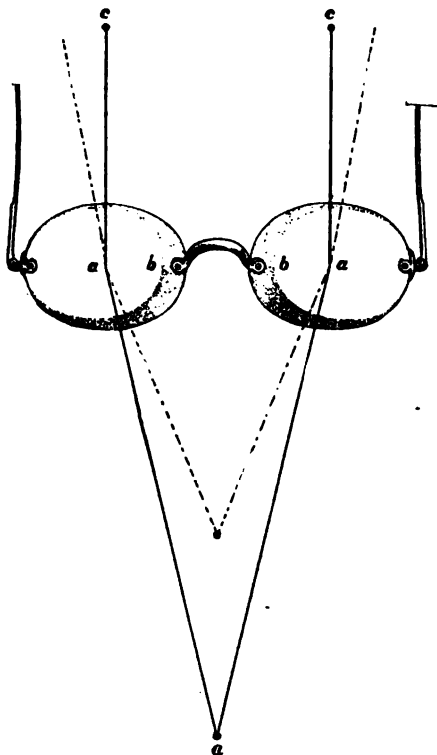
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**CONVEXO-PRISMATIC SPECTACLES.** By Dr. Stewart J. Spence, Harriman, Tenn. Some readers may remember that in March of last year I advocated the use of the watchmaker's eyeglass in dentistry. But excellent though that form of magnifying glass is for the purposes of the dentist, it is surpassed very considerably by the convexo-prismatic spectacles. The superiority of the latter lies partly in the fact that when both eyes are employed you get the rounded appearance of objects which is obtained by seeing partly around them (which, by the way, is produced artificially by the stereoscope), partly in that when both eyes are employed an object appears larger than when seen by only one; and partly in that it is vastly easier to hold a glass to the eye by means of spectacle frames than by the strained compression of the orbicular muscles.

The uninitiated may inquire, "but why might not two magnifying lenses be fitted with spectacle frames and worn as are ordinary spectacles?" The answer is, they would necessitate the eyes being brought so near the object as to require a fatiguing strain of the muscles which control the motions of the eyeballs. The eyes would be drawn to an unusual squint. To demonstrate this, hold a small object at about six inches from your eyes and look fixedly at it for a few minutes, when the sense of strain in the eye will become painfully evident. At a distance of twelve inches, the strain is ordinarily not appreciable.

Now, it is for the purpose of obviating this strain of the recti muscles that the prism is added to the magnifying lens. A ray of light passed through a prism, as we all know, is deflected from a straight line and turned off at an angle proportionate to the angle of the prism. So that if you should wear a pair of spectacles composed of prisms, and then look at an object six inches from your eyes, the rays of light leaving the object and entering your eyes via the prisms will be refracted (if the prisms be of the proper

degree of angle) so as to enter your eyes in parallel lines. This is roughly depicted in the figure, where *o* is the object and *e e* the eyes. The bases of the prisms point towards each other, thus their thickest portions are those proximate to the nose. Should one of them be shifted around half an inch or so you would see double. Prisms are used by opticians for the correction of strabismus. But



a pair of spectacles composed of prisms only, while allowing you to hold your eyes close to an object without strain, give no magnifying effect. Therefore for dentists' use the lens must be added. While experimenting with my optician I had the use of his lenses and prisms in separate forms, but in the crystals made to our order in Chicago, the lens and prism are but one piece, one side of the glass being plane and the other convex, thus producing a crystal which at once deflects the rays and magnifies the object.

There seems to be no law, except that of convenience, to restrict

the use of high magnifying powers; but convenience requires that the operator's face be about six inches from the tooth, and a lens of this focal distance is perhaps best for dentistry. The ordinary watchmaker's eyeglass is of higher power than this, having a focal distance of about four inches. Allowing one and one-half inches between the eye and lens, this would give but five and one-half inches from eye to tooth—rather too little when working on the molars. Besides, any slight change of position of the patient or operator throws the tooth out of focus more readily with a lens of short focal distance than with a longer one.

The glasses I have are of this six-inch focal distance and make an object seem about double the size it appears to the naked eye. This may not impress the reader as a great gain, but he must remember that the object is seen at six inches instead of twelve, which adds largely to its conspicuousness, and the gain is, in fact, simply immense.

*Combination of the Spectacles.* The prism must be proportioned to the lens. As a lens of high magnifying power has a short focal distance, a prism of proportionally high refractive power is required. With a prism too weak for the lens the rays of light would not enter the eyes in parallel lines, but as shown in the dotted lines of the figure. Opticians have lenses and prisms proportioned to each other, and so numbered.

For some reason, the pair of glasses which I had made for myself give a clearer image when the line of vision travels through the thickest portion of the crystals, about  $b\ b$  in the figure. When I received them the crystals were scarcely an inch separated from each other, but by expanding the bridge I parted them by one and three-eighths inches, thus causing the lines of vision to pass them at about  $b\ b$ , greatly improving the clearness of the image. I mention this, because this may and should be adjusted on the trial frames of the optician before the spectacles are made, and it were better if the line of vision be made to travel through the crystals at about  $a\ a$ .

Another error occurred with mine; the crystals were made full-orbed, which made it difficult to look over them. This was very troublesome when reaching for an instrument, or when desiring to look away at a distance; for the instruments appeared in a blur, and the eye was strained by looking through these powerful glasses at anything beyond their focal point. However, I remedied this

defect by grinding down the glasses to the shape known as "clerical." This at the same time effected an improvement by reducing the weight. I am thinking of similarly grinding away the lower third of each lens, thus making them so that they can be seen under as well as over. I am not, however, induced to this by their being still too heavy, for although a quarter of an inch thick at their bases, they are not appreciably burdensome. They might have been made thinner by being less in long diameter, mine being one and one-half inches. But perhaps it is well that instruments so costly (\$12.00) should be "chunky" enough to not easily break from falling.

By having the frames made so that the glass will rest about half way down the nose you get a larger image than when they are made to hug the eyes, and it is also easier to look over them. I found it necessary to bend the frames to correct the angle at which the planes of the glasses stood to the line of vision. Unless this is an exact right angle, objects will appear slightly blurred, and lines of print will appear either bent upwards into an arch, or contrariwise, downwards, accordingly as the crystals lean towards or slope away from the eyes. Having tested these glasses for hours at a time, both in operating and reading, I think I can safely say that they have no injurious effects upon the eyes; at least no sensible strain is experienced.

Dr. W. Booth Pearsall says: "For persons under forty-five years of age a lens of plus 6 D, combined with a prism of  $12^{\circ}$  base in. for each eye, usually gives a working distance of from five to seven inches; but the glass for one or both eyes may have to be modified, and even a cylinder introduced to suit the focus. Unless vision is perfectly normal an oculist should be consulted."—*Items, July*.

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**DENTAL LAW SUSTAINED.** Section 5 of chapter 378, Maryland acts of 1896, reads: "Any person twenty-one years of age, who has graduated at, and holds a diploma from a university or college authorized to grant diplomas in dental surgery by the laws of any one of the United States, and who is desirous of practicing dentistry in this state, may be examined by said board (state board of dental examiners) with reference to qualifications, and after passing an examination satisfactory to the board, his or her name, residence or place of business, shall be registered in a book kept for

that purpose, and a certificate shall be issued to such person. Any graduate of a regular college of dentistry may, at the discretion of the examining board, be registered without being subjected to an examination." This was attacked, in the case of *State vs. Knowles*, as containing the vulnerable points in the state dental law, rendering it invalid. It was argued that as the word "may" occurs twice in the section, and that as there could be no question that in the latter sentence it was employed in the usual and natural sense, the same sense must necessarily and unalterably be impressed upon its employment in the first sentence. Such being the case, the contention was that the board might, if it chose, refuse to examine one holding a diploma from a college or university authorized to grant diplomas in dental surgery, and could thus arbitrarily deny the right to practice dentistry in that state to any one holding such diploma, however skilled in his profession or however qualified to pass an examination. But the Court of Appeals of Maryland says that the law does not permit itself to be frightened out of its propriety by the hobgoblin of inconsistency, and that it itself has no hesitation in holding that the only discretion conferred is to waive an examination when the applicant is a graduate of a regular college of dentistry, and that in all other cases covered by the act examinations must be granted when application is made in accordance with reasonable rules as to time and place. In other words, it construes the first "may" as "shall" or "must," while it says that the latter "may" is required to be used in the permissive sense because it is expressly coupled with "discretion." Furthermore, it thinks the act does mean to distinguish, for the purpose of examinations, between a "college or university authorized to grant diplomas in dental surgery" and "a regular college of dentistry." In the former, it says, by way of justification, dentistry may be but an adjunct to the course, and there is no assurance of thoroughness or instruction and practical application, as must be presumed in a regular dental college, where the whole time of the students and instructors is given to the theory and practice of dental science. The principle underlying the discrimination has been recognized in numerous cases where the authority to determine what colleges are "reputable and in good standing" has been held not to be an arbitrary or unreasonable authority. With reference to the criticism that the language "may be examined with reference to qualifica-



tions" was so vague and indeterminate as to be fatal to the validity of the law, the court answers that it might well have been more specific, but that it is impossible to suppose that it refers to any other qualifications than those appropriate to and requisite for the practice of dentistry. And so the court holds the law constitutional, stating, too, that the same reasons which apply to medicine apply with equal force to the profession of dentistry, which is but a special branch of the medical profession.—*Jour. A. M. A.*

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STEEL, AND SOME CONSIDERATIONS RELATIVE TO ITS USES IN DENTISTRY. By E. B. Lodge, D.D.S., Cleveland. Unlike other metals the term steel has no symbol derived from the Latin or Greek. Gold is represented by the abbreviation Au., aurum. Iron by Fe., ferrum, etc. This is because the metal steel is not found in nature as such, but is a manufactured product consisting chiefly of iron and carbon in chemical combination. The study of this metal should be preceded with a consideration of these constituents. Iron is widely distributed in nature not only as found in ores throughout the earth, but is known to exist in meteors and in the sun itself, as determined by spectroscopic analysis. Iron, moreover, forms an important constituent of the blood. Carbon, the other necessary element of steel, is widely distributed in nature. Carbon in pure state is found as diamond, charcoal, graphite, different forms of the same element. Coal and coke are largely carbon. This element, which is a necessary constituent of animal and plant life, is exhaled from the lungs with every breath in its gaseous state combined with oxygen as carbon dioxid. Manganese, silicon, phosphorous, etc., are also found in steel. When iron and carbon are chemically combined in the proportions ranging from one-half of one per cent to one and one-half per cent of the latter, we have steel, a metal worthy to be classed among the royal metals.

The progress of dentistry and surgery has been due in large part to the improvement in the appliances and instruments, which have kept pace with research and development in other lines. The dentist, the nature of whose work is such that it embraces a working knowledge of several of the arts, should be able not only to keep his instruments in repair, but likewise to construct for himself such appliance as the demands of his work may indicate. Sometimes a special form of instrument will present itself to the mind of the

operator, and with a well equipped laboratory at hand it is often expedient to avail one's self of a spare half hour to produce a new and useful appliance.

Let us suppose that one wishes to make an enamel chisel. Take from the worn-out excavators one which has a reasonably thick shank, which it is presumed is hard steel. The first thing is to anneal it so that it will be soft. This is done by heating to a dull red color and allowing to cool slowly in the air. Care must always be taken not to overheat steel, as in so doing it will be decarburized and irreparably injured. When steel is burned its surface becomes blistered or scaly. This is because of oxidation of the carbon, after which it becomes incapable of taking a fine temper. Having softened the steel, place the shank portion on the anvil, and with a few well directed blows of a suitable machinist's hammer shape the material approximately to that desired in the completed chisel. This done, take it to the lathe, on which is mounted a four-inch carborundum wheel, and with a rotary motion of the instrument between the thumb and fingers, grind down the shank to a gradual taper. Shape the chisel to the form and size desired, paying due regard to strength and proportion. The most difficult and exacting part of the work is now to be performed, viz., the hardening and tempering process. There are several methods employed in giving hardness to steel, according to the character of the particular article. All hardening of steel, however, depends upon heating to a certain temperature, followed by sudden cooling, in which the carbon and iron are crystallized in the form of carbide of iron. The steel is then said to be full hard. The amount of hardness developed in steel is in direct proportion to the amount of carbon, and the rate of cooling from the heated state. For the purpose of the case in hand cold water will answer. The addition of salt will increase the conductivity, and acid will remove oxid.

The writer's method is to hold the instrument point downward, directly above a tumbler of cold water, and to heat carefully to a cherry red with the foot-bellows and blow-pipe. Just the instant the proper temperature is attained, plunge the instrument into cold water. The chisel is now ready for polishing and sharpening, the latter being done on the oil-stone in the ordinary way.

Different instruments require different degrees of hardness according to the use for which they are designed. To temper steel to any

desired hardness is an operation as interesting as it is difficult. When steel is heated above a certain point a series of colors develop upon the surface due to the formation of a film of oxid. These colors vary from a faint straw-yellow to dark blue including yellow, brown, purple and blue, with the one blending gradually into the other, as do the tints of the rainbow. This phenomenon accompanies the heating of soft steel as well as hard. For the purpose of tempering it is only of value when the steel is known to be full hard beforehand.

By a glance at the following table of E. C. Kirk's, the temperature and shades of various articles can be seen.

430° to 450° F.	Very faint yellow to pale straw.	Lancets, razors, surgical instruments, enamel chisels.
470°	Full yellow . . . . .	Excavators, very small chisels.
490°	Brown . . . . .	Pluggers, scissors, pen-knives.
510°	Brown with purple spots . . .	Axes, plane-irons, saws, cold-chisels, etc.
530°	Purple . . . . .	Table knives, large shears.
550°	Bright blue . . . . .	Swords, watch-springs.
560°	Full blue . . . . .	Finesaws, augers, etc.
600°	Dark blue . . . . .	Hand and pit saws.

By the aid of these colors it is possible to determine accurately the quality and temper of specimens of steel of the same chemical composition if it is known that before heating the metal was full hard, as under these conditions the shades of the oxid film are an exact index. To produce an excavator point with the temper attained, and after rendering the metal full hard, it is necessary only to heat the shank carefully until the yellow color creeps along to the part desired and then to chill it suddenly in cold water. If it is desired to have the shank of an instrument less hard and brittle than the point, a very good way after having tempered the point to the degree desired is to hold the point between the beaks of a pair of moderately heavy pliers and then to direct a blow-pipe flame on the shank for a few seconds. The pliers will prevent the heat from letting down the temper in the point, and still the shank is made softer. Care should be taken to keep the pliers on the point for a few moments after the heating, in order that the heat in the shank may not pass down into the blade and thus injure it. Toughness and flexibility may be imparted to steel independent of the method

of the hardening and letting-down process. This is attained by hammering. Repeated blows of the hammer properly applied convert steel from a crystalline structure to that of a more fibrous nature, rendering the steel sufficiently flexible for certain forms of springs. Hammering of steel increases tensile strength, toughness and flexibility. This is accompanied by a reduction in volume and an increase of specific gravity.—*Ohio Journal, June, 1900.*

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**TREATMENT OF PUTRESCENT PULPS WITH NON-COAGULANTS.** By A. L. Swift, D D.S., New York. Read before Second District Dental Society, February, 1900. In bringing to your consideration the non-coagulant method in the treatment of putrescent pulps at a time when so much is heard of pulp-mummification, pulp digestion, immediate root filling, etc., the writer's only excuse is that he has used this method exclusively for over twelve years with such success as to fully convince him that this conservative method has not only been most effective, but that logically, the practical demonstration of a theory which has proven successful for so long a period, careful clinical record having been kept, must contain at least a germ of truth.

The theory that in the use of carbolic acid, creosote and all coagulants the coagulum dams up the tubuli and thus prevents diffused medication and consequently complete disinfection, is not new to any of you, having been the cause of much discussion, and is disbelieved by many. You will all agree, I think, that in the treatment of these, as well as in other conditions brought to our care, to a very large degree it is not so much *what* medicaments are employed, but *how*, and success depends almost entirely upon intelligent, thorough and skillful manipulation.

The writer is thoroughly convinced that the use of non-coagulants is an important factor in the treatment of putrescent pulps, as diffused medication is eminently essential, and I do not believe that diffusibility is attainable when coagulants of either egg albumen or serum albumen are employed. The marked diffusibility of the essential oils cannot be disputed; they are rich in oxygen, and deposit volatile camphors throughout the tubuli, which are all powerful in the destruction of septic and infectious matter. Oxygen stored up in the tubuli aids by its bleaching qualities in retaining the natural color of the tooth, and the non-irritating effects of these oils and

their gentle stimulating action make them especially valuable in these putrescent and inflamed conditions.

The non-coagulant essential oils most used by the writer are cajeput, eucalyptol, oil of Ceylon cinnamon and eugenol. I have been using exclusively for some time the above oils, which have been carefully redistilled and the terpines and resinous matter removed, and also the coloring matter in the eugenol and cinnamon, to a large extent. The cajeput and eucalyptol are practically colorless, so they may be used in the front teeth without the slightest fear of discoloration. The purity of these oils, as compared to those ordinarily procurable, increases their effectiveness to a very considerable extent.

An important factor in these putrescent conditions is the use of every possible antiseptic precaution, and saliva of course must be excluded from start to finish. Having gained free access to the pulp-canal, wash out with a solution of equal parts of pyrozone and bichlorid of mercury, 1 to 1000. I do not attempt to remove thoroughly and deeply all the contents of the canal at the first treatment, believing that after disinfecting for a few days instrumentation is much less liable to force septic matter through the foramen. Frequently wipe out the canal with cotton on broach saturated with the above solution, until satisfied that the canals are as clean as possible, without taking the chance of forcible pumping—for I think we sometimes lose sight of the fact that in the use of the cotton-covered broach as a piston, the force exerted is often much greater than we imagine; it is very easy to force some of this septic matter through the foramen, hence it is not advisable to use enough cotton on broach to make a tight fitting plug or piston. After thoroughly drying out canals, pump in the redistilled eucalyptol or cajeput in front teeth, and if in posterior teeth I prefer for the first treatment oil of Ceylon cinnamon or eugenol; and insert very loosely a wisp of cotton saturated with one of these oils, and seal with gutta-percha, perforating the filling; if there be any periosteal inflammation present, paint the gums with a saturate tincture of aconite and iodin and dismiss for three or four days. In the next treatment, after having wiped out the canals with bichlorid and pyrozone solution, cleanse and dry thoroughly, and again pump in the cajeput or eucalyptol; insert a cotton dressing packed tightly and seal with gutta-percha without perforating, painting the gums again

with aconite and iodine. At the next treatment, about ten days later, the canals will usually be in good condition for filling; after again pumping in cajeput and thoroughly drying out the canals, I fill them with oxychlorid of zinc, painting the gums with aconite and iodine.

*Treatment of Blind Abscess.*—Drain as thoroughly as possible, syringe with bichlorid and pyrozone solution, and use cotton-covered broach, cleanse thoroughly, and after again draining and getting all as dry as possible, pump in eugenol or cinnamon if posterior teeth, if anterior teeth eucalyptol two parts and eugenol one part, inserting a very loosely placed cotton dressing, not closing foramen, seal with Fowler's stopping, well perforated, and paint the gums with aconite and iodine.

When seen about a week later, if inflammation has not subsided and there be still pus present, the treatment would be repeated as just described. Should there be no pus or inflammation present, treat as described when there was not the complication of a blind abscess. In case of blind abscess, which it seems impossible to reach through the tooth, and where suffering continues without abatement, I have found it advisable to open into the apical space with a small trephine and with the use of cocain cataphorically, causing very little pain. After relieving the suffering, maintain the opening until root has been cleansed, disinfected and filled. In case of abscess with fistula, syringe through it the bichlorid and pyrozone solution, and after having cleansed the canal, pump through it eugenol or cinnamon, or the combination of eugenol and eucalyptol, placing in the cavity a piece of rubber such as used for vulcanite work, and forcing it until the oil appears at the fistulous opening; insert dressing in the canal and completely seal with gutta-percha, placing tent in fistula. I think it advisable to wait twenty-four hours for the disinfection of the tubuli, when the root may be filled with oxychlorid after having repeated the treatment.

*Use of Cataphoresis.*—I have found the cataphoric current a valuable adjunct in the treatment of the following conditions: In chronic fistulous openings and those which fail to yield readily to ordinary treatment I use a zinc rod, after the suggestion of Dr. Wm. J. Morton; mounted in the positive electrode and carried through the fistulous tract, the action of the current causing electrolysis of the metal and conveying nascent chlorid of zinc into the

tissues with most satisfactory results. I have successfully aborted incipient abscesses and controlled persistent pericementitis by using equal parts of a fifty per cent solution of alcohol and tincture of iodine applied with the rubber cup positive electrode on the gum, with the negative at the wrist, increasing the current gradually until from eight to fifteen volts were employed, with from one-half to one milliamperes; contact occupying from four to five minutes. There of course follows a slight loss of gum tissue the size of the electrode, but it heals readily with little attention and occasions very slight annoyance to the patient.—*Items, June, 1900.*

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**FALLACIES OF X-RAY DIAGNOSIS.** We have never sought to belittle the value of Röntgen-ray photography in diagnosis, but we have felt that there was danger of its being overestimated. Such a startling and unprecedented novelty as a means of seeing into and through opaque objects could not fail to impress unduly those enthusiastic individuals—and they exist in our profession as well as among the rest of mankind, though not, it is to be hoped, in quite the same proportion—who voice their unquestioning credulity by such a cry as, for example, "the machine can't lie," the "machine" being either an ordinary photographic camera or the apparatus employed in making Röntgen pictures. But it has long been known that common photography is capable of distorting the truth to a grotesque degree, and it seems that the Röntgen-ray picture may do the same thing. This is most cogently set forth in the report of a committee appointed by the American Surgical Association three years ago to report upon the medico-legal relations of the X-rays. The committee's report was presented at the association's recent meeting.

Among the instances of erroneous X-ray observations reported are the following: 1. Dr. B. Farquhar Curtis's case in which a headless pin was supposed to have lodged in the oesophagus, and a scratch on the glass under the gelatin caused what it first seemed to be the shadow of the pin. Fortunately, it was perceived that the outline was too irregular to be that of a pin, no operation was performed, and the pin was passed by the anus. 2. Dr. W. J. Dodd reports the case of a man who was shot in the upper part of the thigh. The scrotum was filled with blood, and a fluoroscopic examination indicated what appeared to be a bullet imbedded in

the testicle, but an operation showed that the testicle, though diseased, contained no bullet. 3. In a case mentioned by Dr. W. L. Estes some bits of clothing, coagulated blood, etc., made a shadow which was supposed to be that of a bullet. 4. Dr. C. Fenger reports a case of two ineffectual operations for the removal of a needle, the situation of which was apparently shown by the X-rays, but which could not be found. 5. Dr. J. E. Moore writes: "Yesterday an ineffective operation was performed by a very competent surgeon. The skiagraph showed an open safety-pin in the trachea, just below the third ring. An opening and thorough search in both trachea and oesophagus failed to reach the pin." 6. Dr. John Owens reports that in a very troublesome case of fracture of the radius and ulna near the wrist, in which one of the bones was wired, the Röntgen picture seemed to show that the wire did not pass through the fragments. 7. Dr. F. S. Watson relates a case in which pictures taken at different times showed a needle in the foot in various situations. It was found at last, but not in the spot shown in any of the pictures. 8. In the case of Dr. De F. Willard's, Röntgen pictures taken at different angles indicated the situation of a bullet in the knee joint, at the inner condyle, but it was found firmly imbedded in the posterior surface of the tendon of the patella. 9. Dr. R. H. Reed has reported a case of faulty localization of a swallowed pin leading to fruitless exploration of the stomach and oesophagus by gastrotomy and a subsequent decision to perform laryngotomy, which was prevented only by the patient's dying on the table from the rupture of an abscess into the trachea. The pin was found at the bifurcation.

The committee's data show clearly that our present ability to draw accurate conclusions from Röntgen-ray pictures is often very limited, especially in cases of fracture. There is great danger that misleading, pictures, which may be made either erroneously or by design, may be admitted as evidence in malpractice cases; yet how untrustworthy they are when unsupported by other evidence, is shown by the facts that good clinical results in fracture cases, without impairment of function or palpable deformity, may be made to appear very bad ones in the pictures, and even that fractures may be shown that have no existence, while others known to exist in a recent stage are not shown. Clearly no conclusion in fracture cases can be invariably based upon Röntgen-ray photography alone, and



it is well that such a body of surgeons as the American Surgical Association has so expressed itself by unanimously adopting the conclusions reached by committee.—*Ed. in N. Y. Med. Jour., July-1900.*

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**PHILOSOPHY OF MASTICATION.** By Dr. Geo. B. Snow, Buffalo, N. Y. Read before Seventh District Dental Society of New York, April 24, 1900. Artificial dentures must in their construction be regarded from two standpoints, the esthetic and the mechanical. It is not enough that the teeth are of the proper shade and shape to correspond with the age, temperament and complexion of the patient, but in their arrangement three purposes, entirely different, must be carried out. First, they must be so arranged that they will contribute their share toward giving a pleasant expression to the features. Second, they must be so disposed that mastication will be well performed, and all the stability possible must be given to the denture for its efficiency. Third, the production of the sounds necessary for speech must be considered. The first and second of these conditions will depend upon the correct arrangement of the teeth themselves, the third to a great extent upon the correct conformation of the lingual surface of the plate. At the present time attention will be called to the second condition only.

The mobility of the mandible and the variety of its movements are well known. These movements may be divided into three classes, necessary for the performance of three acts, as follows: *Prehension*.—The mandible being thrust forward, bringing the cutting-edges of the incisors together, as in biting off a morsel of food. *Attrition*.—The mandible being depressed and moved laterally outward, then elevated to bring the opposing teeth in contact, and moved laterally inward to comminute the food between the teeth until the original central position is again attained, when we have,—*Occlusion*.—The cusps of one set of teeth being received into the sulci of the opposing set.

The following terms, relating to certain peculiarities in arrangement that are noticeable when a perfect set of natural teeth is examined *in situ*, will also be used in the discussion of this subject: The lower incisors are much narrower than the upper ones, and are set upon a smaller circle, their cutting-edges falling behind those of the upper incisors, and usually passing upward, so that the opposing teeth overlap one another to a greater or less extent. This con-

dition is known as the "overbite." In some instances it is not present, the teeth meeting edge to edge. In other cases it is excessive, the lower incisors touching the gum behind the upper ones. A certain amount of it is desirable, and for the purposes of this paper a normal overbite may be defined to be such an amount of overlapping of the lower incisors by the upper that the teeth may act in prehension after the manner of shears. If the teeth meet edge to edge they resemble nippers in action and are not so efficient in use.

As a consequence of the narrowing of the lower incisors, all the lower teeth are situated in advance of the upper ones, and the center of each bicuspid is in line with the interspace of the opposing teeth, its mesial and distal articulating surfaces meeting the distal and mesial surfaces of its two opponents. This is called the "interlocking of the bicuspid."

A lateral view of either an upper or a lower jaw, with its teeth in position, will show their occluding surfaces not in a plane, but a curve; convex for the upper jaw, concave for the lower. On account of the "overbite" there is more concavity to the lower articulating surface than there is of convexity to the upper. The front of this curve is nearly horizontal, but that part of it corresponding to the molars has usually a very decided upward turn, which has received the name of the "compensating curve." The reason for its existence is better understood after studying the peculiarities of the temporo-mandibular articulation.

In each of these joints it will be remembered there are two synovial sacs, separated by an interarticular cartilage, the lower sac being used for the ginglymoid or hinge-like movement of the mandible, the upper sac when it is either protruded or moved laterally. In the latter case the cartilage moves with the condyle, forward and downward over the *eminentiæ articulares*; the amount of descent varying with the depth of the *glenoid fossæ* and consequent prominence of the *eminentiæ*. These are said to depend, again, upon the length of the cusps of the teeth and the amount of overbite, the *glenoid fossæ* being quite deep when there are long cusps, long overbite, and slight lateral movement of the mandible, and shallower when the cusps are flat, the incisors meeting edge to edge, with the lateral movements of the mandible free and unobstructed.

In the movement of prehension the mandible moves diagonally forward and downward, its motion in front being governed by the

sliding of the cusps of the bicuspid over one another, and in the rear by the movement of the condyles upon the eminentiæ articulares. If the articulating surfaces of the molars formed a level surface they would be separated by this movement, but by means of the compensating curve they remain in contact. And if the amount of overbite is not excessive, the incisors and second molars may touch their opponents simultaneously in the act of prehension.

In the movement of attrition the condyle on the side toward which the mandible is thrown remains in its fossæ, having only a slight movement—partially rotary, partially ginglymoid. The other condyle slides forward and downward, with much the same movement as in the act of prehension. And by means of the compensating curve, contact of the teeth on both sides of the jaws is possible as they come together in mastication.

In the movements of attrition the lower teeth have rather peculiar movements. Taking into account the lateral swing of the mandible alone these movements are circular, but they are made from two centers, the condyles. The lateral movements of the incisors are thus not in a straight line, but outward and forward from the center on either side, in curves, as one or the other of the condyles forms the center. With the bicuspid or molars the movements of the lower teeth upon the upper are almost directly across the line of the alveolar arch on that side, the condyle of which is serving as the center of motion. But at the other side the movement is forward and inward and nearly on a line with the arch. Mastication is performed much more efficiently upon the side where the opposing teeth move crosswise, and we find that if a morsel of food is on the right side of the mouth, for instance, the mandible in the act of chewing it is instinctively depressed, thrown to the right, brought up against the morsel, and then returned to the position of occlusion.

When the teeth are in occlusion the cusps of the lower bicuspid and molars are received into the sulci of their opponents, and the buccal cusps of the upper teeth are out of contact, as they overhang the lower teeth. In the act of attrition the cusps penetrate the food and touch as the teeth are brought together, and the space between the sulci of the opposing teeth is filled with food, which is almost entirely cut off from the surrounding mass. Then, as the returning lateral movement brings the teeth into occlusion, that which is im-

prisoned between the sulci is ground into a pulp. If the grinding surfaces of the teeth are flat and smooth they are thereby rendered much less efficient in mastication.

To obtain the best results in the construction of artificial dentures the points discussed should be well understood, and the arrangement of the teeth should be such as to comply with the conditions and obtain the results hereinbefore mentioned. Certain limitations are imposed by reason of the instability of artificial dentures, the principal one being the amount of overbite which is allowable. In nature, the teeth being firmly set in the jaws, the overbite is often so great that when the teeth are in the position of prehension there is no contact except with the incisors. This condition of things, with artificial dentures, would inevitably cause their dislodgment. And this will occur with a very limited amount of overbite if the use of the compensating curve is disregarded and the articulating surface of denture made flat; and most of all, if sufficient clearance is not allowed between the upper and lower incisors and cuspids.

It must be remembered that in what may be termed a normal denture the compensating curve and overbite are proportional to the length of the cusps of the bicuspid. In dentures of the nervous temperament, for example, we will find long, thin cusps, a corresponding amount of overbite, and also of the compensating curve. In those of the lymphatic temperament, to go to the other extreme, the cusps are short, and there is less overbite and a flatter articulating surface. But with artificial teeth the shape and length of the cusps is not always, nor, indeed, often, a very close copy of those of the natural organs, and they are usually so short and fit together so poorly that but little compensating curve is necessary or advisable. Still, a certain amount of it is a necessity.

A manufacturer of artificial teeth was lately asked the question, if in designing his tooth-molds any attention was paid to the manner in which the cusps of upper and lower bicuspid and molars would come together, or whether a certain lower set was designed with reference to its being used with and producing correct occlusion with a certain upper set. It appeared from his answer that little or no attention was paid to this matter. The upper and lower sets were matched up by an employe who knew or cared little about the articulation of the teeth, and only looked to the appearance of the sets when mounted upon wax cards.

The late Dr. Bonwill recognized this fact, and when setting up artificial teeth he always ground the cusps to obtain the articulation he wished. Indeed, it is said that he always made a point of grinding them enough, at least, to remove the smooth, glassy surface, averring that the roughness left by grinding made them more efficient for mastication. On the contrary, many dentists seem to attach a sacredness to the cusps of artificial teeth, and never touch them with the wheel unless actually compelled to. From what has been said of the way in which they are made it will be seen that this position is absurd, and that if anything can be gained for the efficiency of the denture by grinding the cusps of the teeth it is better to do it.

In the arrangement of artificial teeth the first consideration is, of course, the esthetic effect. They must be of the right size and shade and of the proper shape; and in arranging them it is well to set up the upper incisors, cuspids and bicuspid, and try them in the mouth of the patient, to insure their being in harmony with the play of the features. Then the lower second bicuspid is placed in position, central with the interspace between the upper bicuspid. Next the lower first bicuspid is added, followed by the lower molars. The upper molars are then placed, pair by pair, and as each addition is made assurance must be had that it does not interfere with the proper articulation of the teeth already in place; and each tooth as it is added is shifted in position and inclination until the right effect is produced. The cuspids and incisors may be added at any time after the bicuspid, keeping them out of the way so that nothing will interfere with the proper contact of the cusps as the mandible performs its various movements. With the correct arrangement there will be contact at both sides of the mouth with any movement of the mandible, whether forward or lateral, and when the result is attained the greatest possible stability will have been given to the denture, so far as the articulation of the teeth is concerned.—*Cosmos, June, 1900.*

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**BEANS, THEIR MORPHOLOGY AND FOOD VALUE.**  
*Morphology of Beans.*—Taking the bean botanically, it is the seed of the phaseolus species of the leguminose family. The seed is made of the germ and two lobes, called cotyledons, which are seed leaves loaded with starch to serve as food for the germ and for

animals. The points of interest are: The seed is covered with a thick skin or envelope, which is made up of a set of beautiful prismatic crystal-like shapes of cellulose placed side by side longitudinally, so that these ends make the outside and inside surfaces of the skin or envelope and appear very much like the tops of the Giant's Causeway crystals of traprock. In the middle of each prism is an hour-glass contraction, which is in the central axis and is surrounded with clear cellulose, which fills out the contour. The crystal elements of the membrane are quite insoluble, polarize light, and resist the digestive influences of the alimentary canal. They are found in large quantities in the excrement of bean-eaters, and furnish a sure proof, when found, that beans or peas entered into the diet of the case under examination. In the Lima beans the lateral surfaces are narrowed, leaving tack-like heads or irregular shapes at both ends. Of course the membrane thus made cannot have the strength of the membrane of the common white bean, as the prisms do not touch along their sides. The epithelia of the common bean have remarkable interdigitations. When interlocked, unsoftened, and unseparated by cooking they must hold together the parts over which they are spread with great firmness. Indeed, if beans uncooked sojourn in the meatus of the ear, in the nostril or in the alimentary canal, they remain unchanged, more or less, for a time, and are voided almost in the same condition as when they entered. No sane person would think of eating mature dry beans for food. The toughness, thickness and peculiar structure of the envelope of the bean make it so strong an obstacle to digestion and assimilation. The substance of the bean is made up of starch germs, connective tissue, spiral vascular tissue, etc.

The starch is not peculiar in its appearance, and is readily recognized. In a section of an uncooked bean the starch grains appear in globular masses of varying sizes, filling up, apparently, the meshes of the connective fibrous tissue, which is quite thick, fibrous, homogeneous, polarizes light, and is probably cellulose or woolly fibre, very resistant to outside influences of any kind. In a section of raw Lima bean the meshes appear as in one continuous network, making areolæ; but when cooked by baking or boiling there is a great change wrought, which is surprising, for the starch grains are found to be contained in sacs of thick cellulose, which are distant from each other and are of various sizes, shapes and

contours. containing a variable number of starch grains. They are globular, pyriform, elongated, compressed, apparently triangular, sometimes reminding of diffugia cratera, sometimes of pelomyxæ, and so on, but all covered with a transparent envelope or sac of cellulose, which looks like the clear margin of gemiasma verdans, rubra and plumba, found in malaria. The thickness of this coat is worth attention. Taking an average sac, I found it measured 8.5 mm., while the thickness of the clear investing sac measured 0.5 mm., so that the proportion for the case measured would be 8.5 to 0.5, one-seventeenth of the whole diameter for the investing sac; or to put it differently, if the sac were an egg two inches long and had a proportionately thick shell, it would be one-quarter of an inch thick, which certainly would be an extraordinary thickness for a hen's egg,, and make it tougher than an ostrich's egg, one of which exploded at the Peabody Museum, New Haven, the other day, from the pressure of internal gases, and came near killing the scientific gentleman who was studying it. It is probable that it takes a great force to explode one of these sacs of baked beans. The fact that so few of the sacs are found ruptured after cooking and after migrating through the alimentary canal shows a great power of resistance to digestive agencies. In beans not thoroughly cooked the diagnosis is based on the following: 1. Action of polarized light. 2. Condition of the starch contained within the sacs.

*First, Polarized Light.*—On the uncooked starch grains polarized light sets with great beauty, but when the starch is cooked polarized light has no action, hence a good test of cooking is by polarized light. As the beans' starch grains are cooked they polarize light less and less, and when cooked (to repeat) polarize it not at all; so one can judge at once by polarized light as to whether beans are cooked or not. The purple selenite stage slip is the best.

*Second, Condition of the Bean Starch Grains.*—Before cooking they are clean cut, distinct; after thorough cooking they lose their outlines and forms, blend into one homogeneous mass that is granular, devoid of structure, sometimes striated in coils, looking much like the solid extract of the herb as found in pharmacy, only not so deeply colored. The amount of disintegration, breaking down and homogeneousness constitute a very good test for the thorough cooking of baked beans.

Boiling the beans serves to coagulate the protoplasm into a

nucleus, leaving a clear ground-work about it; the grains are swelled and disturbed more than in baking. These morphological changes are easy to study. A good one-quarter inch objective, a two-inch eye-piece, with a slide, cover, stand and toothpick, are means ample enough to verify these statements from off one's own table. With the toothpick small portions of the baked beans can be transferred to the slide, a little water and manipulation with the cover will disturb the specimens into an even field, and the slide is ready for the microscope. Those who have a polarizing apparatus can test the specimens with it. The writer hopes that more attention will be paid to the morphology of food in time to come, for certainly it furnishes a field of study always present, easy to get at, and of vital importance to the human race in more points than the esthetic one. This leads to the physiological view.

*Baked Beans in Relation to the Functions of Digestion and Assimilation.*—(Provided they are in good order and thoroughly cooked, so as to furnish the simplest problem of solution by the functions named; provided the cellulose structures are softened, macerated and separated; provided the salivary liquids are thoroughly mixed in the mouth, and the beans thoroughly ground by the teeth.) In the stomach the beans digest little; in the intestines the bile, the pancreatic and intestinal fluids act on the starch, complete the changes already begun by cooking, mastication, and gastric juices, and turn into glucose, in which soluble condition it is taken up into the portal circulation and transmitted to the liver.

The other elements of the beans that are made soluble are also absorbed into the system, and it is fed and warmed by the beans. The longer this food stays in the stomach the more it ferments. For it must be remembered that the alimentary canal is a great reservoir of fermentative vegetations as a rule, so that sedentary persons have more trouble with this article of food. Persons who live out of doors, and who move about actively and work hard, digest vegetable foods better than do the sedentary, as the food is accelerated in its passage through the alimentary canal and the indigested remainder has less time in which to ferment. Hence when we hear of a Maine lumberman thriving on baked beans, which, frozen solid by the barrel and cut with axes, are then cooked, we lay the benefit to the fresh air of the woods and the violent exercise.



From what has been said it must be admitted that baked beans are not easy to digest, and that there is good reason for the unusual amount of intestinal gases that accompany their digestion. This gas is usually carbonic acid; it is formed inside the bean sacs, and they must explode like microscopic dynamite bombs in the intestines! If we consider that nerve force is the agent by which digestion is regulated, if not produced, other things being equal, it takes more nerve energy to digest baked beans than some other kinds of food, and, of course, there is less energy left to run the rest of the economy in the departments where nerve force predominates, hence the cerebral centers cannot act with that efficiency and energy that they could if the system was fed on a food that took less nerve force to digest it. To be sure, allowance must be made for difference in individuals in the power of digesting baked beans and other articles of food. Some will digest their meals when others cannot, because their organs are in remarkably good condition to do their work; but even so, it is not profitable to abuse a good digestion.

*Baked Beans as a Cause of Disease.*—Some years ago some unique but most valuable experiments were made as to baked beans. A physician and six strong, healthy laboring men were placed on an exclusive diet of baked beans, coffee and milk. They were sedentary, save that in the morning and evening they all marched out on the street in military order for exercise. Almost immediately there was diarrhea, followed in all the cases (in about fourteen days) by consumption of the bowels. If any one doubts this, he is asked to live on the same diet exclusively for the same time and report results, which were so uniform in the above cases that there is no hesitation in predicting like issues. This may be called too severe treatment of any food, and that no food would stand such a test, because so unnatural. The diarrhea was caused by the alcoholic fermentation of the baked beans, producing alcohol, carbonic acid and vinegar. The alcohol showed itself by the fuddling of the men, while it did good by arresting for the time the active process of the fermentation. The results of the action of the alcohol were: 1. Distension of the bowels by gas. 2. Paralyzing them by direct contact. 3. Paralyzing the epithelia of the mucous membrane, making them, as it were, drunk, causing a thickened catarrhal condition; hence the profuse liquid discharges, and later on some sulphuretted hydrogen.

It is always possible to detect the eating of baked beans by a microscopical examination of the forms found in the feces of the eater. The beautiful cellulose prisms or double tack-headed elements of the outer membrane of the bean or pea will tell the tale, while an abundance of the sacs filled with starch grains, sure to be found, will testify to the same thing. At one time the writer verified this in his own person, and was astonished at the quantity of undigested beans and other food that ran the gauntlet of an alimentary canal which was called healthy. Once the writer visited the Massachusetts State Prison. Passing by the latrine he saw a pile of baked beans, large enough to load a horse-cart, most of which had passed through the digestive organs of the prisoners. Certainly if this exhibition meant anything it showed that these baked beans are a poor prison ration. I think it would be more rational to feed the beans to animals whose organs are better adapted to digest them than man's, and if need be let man eat the animals. If the sacs of the bean grains could be ruptured before eating considerable objections would be removed. They might be crushed between rollers or pounded in a mortar, or mashed like potatoes. If bean-eaters would take time to thoroughly cook and chew them the situation would be improved. But probably one great recommendation of baked beans is their smallness, so that they are swallowed whole, easily, and thus save time in eating. If man had the gizzard of fowls, or stomachs like bovines, this might answer; but it seems to me we do ourselves harm in the end by imperfect mastication, which fails to crush the bean sacs and mix the juices of the mouth with the starch of the bean, and so prepare it for the digestive processes it should undergo; for if they are not prepared a good portion is wasted.

*Importance of Cooking.*—The writer has no idea of influencing the abandonment of baked beans as a food, but he would like to put in a plea for better cooking. It goes without saying that the average cooking is bad. 1. Soak a quart of beans over night in two quarts of cold water. 2. In the morning turn off the water, add fresh water, and boil them till the membranes begin to separate; turn off the water. 3. Put the beans in a baking pot with half a pound of salt pork buried in the beans; add two tablespoonfuls of molasses, and cover the whole with water. Bake in a slow oven all day; a baker's oven is best. Watch the beans, and if they

become too dry add more water. When thoroughly cooked it will be known by the softness of the beans in the mouth between the teeth, by the taste and by the microscope showing the starch grains broken up and mixed in one homogeneous mass that will not polarize light with a selenite plate. 4. Take time to eat and chew thoroughly.—*Albany Med. Annals.*

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DENTISTRY IN CUBA. C. W. Orland, D.D.S., Havana, Cuba. Read before Eastern Indiana Dental Association, May 3, 1900. When one first arrives at this Isle of the Sea the most striking thing is the condition of the teeth of the natives. To an American, who has been used to seeing a public that takes reasonable good care of the teeth, it is somewhat appalling. The lower classes of the United States have bad teeth, or rather they let them go until they become bad, but the lower classes of Cuba are something awful in this respect. From their general appearance as they are seen on the street one immediately comes to the conclusion that they never go to a dentist under any circumstances, and this is true in the great majority of cases. When a tooth gets to aching very badly they put upon their faces a strong plaster for the purpose of producing a counter irritation, and it certainly fulfills its mission, for it takes the skin off the face, leaving a great red spot that contrasts very strongly with the dark color of the surrounding skin. This plaster is a leaf of some kind, though I have not been able to learn of what variety, and it is applied by sticking it to the face. It is no uncommon thing at all to see people on the street thus decorated or to see them after the decoration has been taken off and only its marks remain.

It is among the middle classes, however, that one is most surprised. In the stores you will be waited upon by a rather nicely dressed, well appearing man, who when he opens his mouth may display the most unclean, snaggle-toothed condition imaginable. He may not lack only some of his front teeth, but there will probably be a number of decayed roots that are half overgrown with gum tissue, displaying a source of filth most unsettling to behold. The possibility or advisability of having the old teeth taken out and the mouth cleaned up and a bridge or plate put in never seems to occur to him. Another man may simply have lost a number of his front teeth, yet he will go for years with that ghastly vacancy in

his mouth, and his appearance spoiled, without having anything done to better his condition, and this also applies in a great number of cases to young ladies. They all seem to lack the personal pride that would prompt an improvement, yet they are the most fastidious people about their dress and appearance in other ways. A partial excuse for this toothless condition is the excessive charges that the dentists have made in the past. Until five years ago it was impossible to get a plate made by a dentist of reputation for less than \$100 in gold, and all other charges were in proportion, so that the ordinary individual was practically debarred from the benefits of dentistry; and since that time there has scarcely passed enough time to educate the people in the matter. The people of the upper and wealthy classes are on the same plane as the people of the better classes in our country; they are clean and take good care of themselves in all respects, and this, of course, includes their teeth. Most of this class are in the habit of going to the United States or France very frequently, and when there they have their teeth attended to.

Shortly after my arrival in Cuba I met a rather well informed American, who had lived in these climates for about fifteen years, and after learning what my business was he remarked that I ought to find a rather good field of work among the newcomers, as they would be very apt to need the services of a dentist badly after a few months' residence in the climate. I answered that I did not understand what effect the climate could have upon the teeth, that a man was liable to decay of the teeth and other oral diseases in any climate, and that I could not understand why it should be worse in one country than another if he kept himself clean. He replied that he could not explain the why and wherefore, but his experience was that such was the case, and he believed I would find it so. I attributed his remarks to the superstition of the laity, though of course I could not forget them. Since then I have found that he knew what he was talking about, even if he did not know the reasons for it. It becomes a self-evident fact to the practicing dentist that we have ailments of the mouth here that can be attributed directly to the climate. The most conspicuous of these is a species of oral catarrh; the mucous membrane of the mouth and gums becomes red and swollen, the teeth are sore and slightly loose and have quite a quantity of tartar at the gum margin, which collects very rapidly, the breath is fetid, the saliva is thick andropy and has a slightly excessive secretion, and every-

where in the mouth is a thick grayish layer of what I have taken to be dead epithelial cells. This condition is most frequent among foreigners, and is said to be brought on by the change of atmosphere, and so it is, indirectly; but directly it is the result of the low acclimatizing fevers that all newcomers are constantly having, so slightly sometimes that they are hardly noticeable. The disease is seen frequently among the native children, and I believe that it is want of attention to it in the children that is the cause of such bad teeth among the adults. It readily succumbs to treatment if taken early. The treatment, of course, is a thorough cleansing of the teeth, and I have been prescribing a  $\frac{1}{2}$  per cent solution of carbolic acid in water, to be used with the toothbrush; instructing the patient to scrub the gums, cheeks and tongue as well as the teeth. I tell them also to use it promiscuously as a mouth wash.

Accompanying this catarrhal condition one usually finds a considerable amount of decay of the black, rapid-going kind; it is soft, and in excavating one can take great quantities with one stroke of a good-sized spoon excavator. In most cases the decay has progressed to such an extent that the pulp is involved, though it frequently has shown no indications of it.

All of these conditions are found very frequently among the American soldiers here, and it is hardly to be wondered at, for the private soldier is usually a man who has not taken a great amount of care of his teeth, even when at home, and after he enlists he finds that with his limited salary it is impossible to do so, and for this reason it is little less than criminal for our good Uncle Sam not to do it for him. When a soldier enlists one of the most rigid points of examination is his teeth, and yet after he has enlisted there is absolutely no provision made to take care of them.

The legal prerequisites of the practice of dentistry, or any other profession, in the island of Cuba are enough to make a man think twice before he undertakes their fulfillment; that is, if he realizes what he is undertaking. Cuba to-day is working under an old law regulating the practice of dentistry which was passed in 1848. It seems simple enough and would be simple in any other country on the face of the globe, but anything that requires business with the Cuban officials is always a labor that tries one's patience and Christianity to their fullest extent. The law as I understand it is this: The applicant must first make application to the Secretary of Pub-

lic Instruction for the privilege of standing an examination in dentistry before the examining board of the University of Havana, three of whom are physicians and the other two dentists. The secretary gives him an order to the Dean of the University for the examination. With the order from the secretary the applicant goes to the university and again makes formal application for the privilege of standing the examination, depositing with the dean a fee of \$40, which constitutes the examination fee. The dean sets the day for the examination, which is usually within some reasonable period. The examination is fair, though pretty stiff. The intention of the law is all right; it is the everlasting delay, indifference and negligence encountered at every turn that are so irritating. This, by the way, is characteristic of the people in all their doings, when the matter before them is purely a matter of business, and especially is this true among officials. Any diploma that one may have is of absolutely no use, as it is not recognized. The examination is always compulsory. The spirit met with through the entire ordeal is not one of assistance by any means. If one makes a mistake in the numerous technicalities it is his mistake and not the officials', and they say nothing, even if a word at the proper time would save all the trouble. This is the spirit all foreigners meet if they desire any professional examination. My application laid on the table six weeks before I heard a word from it, yet I knew of a Cuban who made application and got the examination in the meantime. These same people if met with socially would probably put themselves to a great deal of trouble to accommodate you, but it is not so in business.

The difficulties met with in everyday practice are in themselves no small thing. It is absolutely impossible to impress upon the Cuban the importance of keeping an engagement. An engagement made at 9 o'clock is sure to be kept at 10 if kept at all that day; and for this reason the practice of making engagements has long since been abolished, though each newcomer has to learn it for himself. This want of punctuality holds also in the treatment of teeth and becomes very annoying.

Another difficulty is supplies of all kinds. Many of the modern things in everyday use in the States have been unheard of here; for instance, when I came down I brought with me a few carborundum stones, and they were the first ever on the island so far as I know,

at any rate they were not in the dental depots, and several of the prominent dentists had never seen them. The stocks of teeth are the worst difficulty of the lot, not because there are not enough of them, but because the assortment is so poor that it is next to impossible to match a tooth if it is the least bit out of the ordinary. The expense of all material is a little hard to bear at first, but one gets used to it after a time; it is better to pay the extra charges in money than to put in the labor to get things through the custom house; there is a duty in any event of 40 per cent on nearly everything we use.—*Indiana Journal, June, 1900.*

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**PINK SPOTS ON TEETH.** By J. A. Fothergill, L.D.S. Read before Odontological Society of Great Britain. The patient, aged 19, complained that her left maxillary central incisor was becoming pink. On examination I found on the labial surface a pink spot commencing near the upper termination of the mesial border and extending about one-third across the tooth. The enamel over this portion appeared to be very thin, and the pink color to be due to some vascular body showing through. To the left of the pink spot, and quite near the gum margin, there was a very minute perforation of the enamel, in which soft tissue could be seen. This tissue was slightly sensitive. The edges of the perforation were quite thin and fragile and suggested absorption.

There was not the slightest sign of caries about the tooth, which was quite firm, and with the exception of the above-described peculiarities perfectly healthy in appearance. The patient first noticed the discoloration about a month before I saw her. She had no pain, but slight tenderness on biting very hard and when brushing teeth. There was no history of injury. Rather more than three weeks afterwards I saw the patient again. The perforation was considerably larger. The pink spot had also increased in size, and there were two minute perforations of the enamel within its area. I put the point of an excavator into one of them and removed a thin bridge of enamel from between the perforations, disclosing a mass of vascular tissue. I froze the latter and scooped out as much of it as possible with a broad excavator. There was so much hemorrhage that I could not see the relation of parts very well, so I put a dressing of sandarac and tannin on cotton wool into the cavity and left it till next day. On removing the dressing I found the cavity was

coextensive with the pulp chamber. Gas was given and an extractor passed up the root; unfortunately the extractor broke and a portion was left behind. As I was unable to recover the broken piece I removed the pulp as far as possible, put in an antiseptic dressing and filled the cavity with gutta-percha.

The patient went to London and I heard nothing of her for ten weeks, when she wrote to say the tooth was becoming black. I saw her soon and on removing the gutta-percha found that the discoloration was due to the decomposition of pockets of the vascular mass which ran in the direction of the cutting edge of the tooth and had escaped my notice. These remains of soft tissue were removed, the cavity washed with peroxid of hydrogen and partially filled with cement. A porcelain inlay was made, and the tooth presented a good appearance, which it retains to the present time.

I sent the small pieces of tissue removed from the tooth to my cousin, who prepared a number of microscopic sections. These for the most part show a structureless mass of small cells, but the sections from one piece show papillæ covered with epithelium. The interesting question is, of course, what was the origin of the vascular growth? It had every appearance of originating in the pulp, and I certainly think it must have done so, as no connection with any of the external structures could be found, and the fact that no recurrence has occurred since the removal of the pulp seems conclusive; but the difficulty of accounting for the epithelium remains. This is sometimes found in polypus of the pulp, but its presence is said to be explained by accidental grafting from the surrounding mucous membrane.

On August 12 the patient drew my attention to the right central, as she thought the same condition was appearing in it. There was a very slight rosy tinge just at the gum border. When a probe was passed under the gum it entered a cavity about a quarter of an inch above the free margin and a sharp edge could be felt. Pressure on the gum over this spot gave pain. As there seemed reason to believe that this tooth was following the example of its fellow, and the patient was very anxious to have something done to save it, I drilled into the lingual surface and removed the pulp under gas. The pulp did not present any abnormal appearance, but I was able to trace a communication between the pulp chamber and the cavity under the gum. The tooth remained without change until last



spring, when it became rather loose and tender and an alveolar abscess developed above it. When this was lanced a quantity of thin fluid containing cholesterin scales escaped and the trouble subsided.—*Brit. Jour. D. Sc.*, July, 1900.

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**DENTIST AND PER CENT.** By G. B. Squires, Ph.G., D.D.S., Somerville, Mass. After the article, "Dentists as Prescription Writers" (*Cosmos*, March; *DIGEST*, April, 1900), was published the author received several letters from dentists, asking for information in regard to per cent. In the *Cosmos* for June, 1898, there is a short editorial on the same subject, showing that there are many dentists who do not understand the meaning of per cent, and therefore are unable to prepare a certain per cent solution of a substance or to find the amount of a substance in an already prepared solution of known percentage.

A professor in one of our dental colleges, while delivering a lecture to the senior class, informed them that two and a quarter grains of cocain hydrochlorate in a dram or eighteen grains in an ounce of water made a four per cent solution. This statement, although practically correct, is rather arbitrary, and subsequent conversation with the class showed that only a small minority knew why it required this particular amount to make a four per cent solution.

In the editorial previously referred to there is a paragraph which reads thus: "The Troy ounce of water, however, weighs 455.69 grains, so that if the percentage solution were to be made by weight, a one per cent solution would be made by adding 45.6 grains to one fluid ounce of water." The above statement is not correct—evidently a misprint—but the present writer ventures to make the statement that a good-sized minority of the readers of that article took the figures for granted, and would not have been able to verify them if they wished. As a matter of fact one per cent of 455.69 grains is 4.5569 grains, or expressing it approximately by cutting off three of the decimal figures, 4.5 grains instead of 45.6 grains.

The following is an attempt to review certain rules in percentage, which all dentists probably learned while in the grammar school, but which they now fail to apply practically. There are some who seem to think it a complicated process to find, for example, the amount of cocain hydrochlorate in an ounce of a four per cent solu-

tion, but who could easily figure it out if they realized it was merely a simple example in percentage. Per centum is from the Latin *per*, by, and *centum*, hundred, meaning by the hundred. Therefore percentage is the process of computing in hundredths. The percentage of a quantity is so many hundredths of it, as is indicated by the per cent—*i. e.*, two per cent of a quantity is the same as two-one-hundredths of the quantity. For example, a two per cent solution means that there are two parts of a certain substance in one hundred parts of the solution, or in other words, two-one-hundredths of this solution is composed of this particular substance.

Then, if per cent is the number of hundredths, we may express it in the form of a decimal or common fraction—*e. g.*, one per cent may be written .01 or  $\frac{1}{100}$ ; five per cent, .05 or  $\frac{5}{100}$ ; ten per cent, .10 or  $\frac{10}{100}$ , and so on. The decimal form is generally employed in getting percentages, it being the shorter method. Let us get two per cent of one hundred grams both ways. Expressed in the form of a common fraction the process is simply the multiplying of a whole number by a fraction, and this is done by multiplying the whole number by the numerator and dividing the product by the denominator; thus:  $100 \times 2 = 200$ , and  $200 \div 100 = 2$ ; the number of grams in a hundred to represent two per cent. Expressed decimally, it is the multiplying of a whole number by a decimal fraction. The rule is: multiply as in whole numbers, pointing off as many decimal places in the product as there are decimal places in the multiplicand and multiplier—*e. g.*,  $100 \times .02 = 2.00$ ; the number of grams in a hundred to represent two per cent. Always bear in mind the decimal point in getting percentages. Two per cent cannot be written thus: .2; this would be two-tenths or twenty-one-hundredths, which is twenty per cent and is expressed decimally thus: .20.

Now if we all used the metric (the only proper and scientific system) it would be simply a case of multiplication in making any per cent of an aqueous solution of a solid, because the unit of dry and liquid measure corresponds—*i. e.*, one cubic centimeter of pure water at its greatest density weighs one gram. For example, to make 30 cc. of a five per cent solution of cocain hydrochlorate we proceed thus:  $30 \times .05 = 1.50$ , one and fifty hundredths, or one and one-half grams, being the amount of cocain hydrochlorate to use.

But when we use the apothecaries' weight and measure we find that the unit of weight (the grain) and the unit of measure (the

minim) do not correspond—*i. e.*, one minim of water at its greatest density does not weigh just one grain, but a little less. One fluid-ounce of water contains 480 minims, but this will not weigh one troy ounce, or 480 grains, but 455.6 grains. Then it necessarily follows that if we weigh one substance and measure the other, we must convert the measured substance into weight before figuring the percentage. For example, to make a fluid ounce of three per cent cocain hydrochlorate we would take the equivalent of a fluid ounce in grains, which is 455.6, and multiply by three, thus:  $455.6 \times .03 = 13.668$ , the amount of cocain hydrochlorate to use—practically thirteen and one-half grains. If you wish to make only one dram of the solution, get one-eighth of 455.6 or 56.95, practically fifty-seven grains; multiply this by three, thus:  $57 \times .03 = 1.71$ , practically one and three-quarter grains. To get a three and one-half per cent proceed the same,  $57 \times .35 = 1.995$ , practically two grains.

It is customary in making ordinary aqueous solutions to measure the liquids and weigh the solids, but we could weigh both and then there would be no converting—*e. g.*, to make one troy ounce of three per cent solution proceed thus:  $480 \times .03 = 14.40$ . Take 14.40 grains and add water to one troy ounce (480 grains), and we have a three per cent solution, as in the previous example, but the finished product is not the same. In this case we have made a little more than a fluid ounce.

If we were using a two per cent solution of cocain hydrochlorate for injection in tooth-extraction and our syringe held one-half dram (30 minims), to find the amount of cocain hydrochlorate in each syringeful we would take the equivalent of thirty minims in grains, or 28.5, and multiply by 0.2, thus:  $28.5 \times .02 = .570$ , five hundred and seventy thousandths or fifty-seven hundredths, practically one-half grain.

Dentists should be able to reduce from a higher to a lower per cent, especially now that formaldehyd is being used quite extensively. Formaldehyd is found commercially in a thirty-five to forty per cent aqueous solution. This is too strong for ordinary use. If our solution is forty per cent strength it is a simple matter to reduce it one-half with water and get a twenty per cent solution; double this quantity again with water and get a ten per cent solution and so on. But if your solution is thirty-five per cent and

you wish to reduce it to a three and one-half per cent, for example, the process by the above method would not be so easy. There are several rules for reducing from a higher to a lower per cent, but the following is probably as simple as any. It is stated in proportion, according to the rule of three, thus: The per cent of the stronger is to the per cent of the weaker as the quantity of weaker desired is to quantity of stronger required to produce it.

Now to make a fluid ounce of three and one half per cent formaldehyd from a thirty-five per cent we would state it thus:  $35 : 3.5 : 480 : X$ . To find  $X$ , or the unknown quantity, we multiply the second and third terms and divide the product by the first term, thus:  $480 \times 3.5 = 1680.0$ , and  $1680.0 \div 3.5 = 48$ . Forty-eight minims, the amount of the thirty-five per cent solution to use in an ounce of water to make a three and one-half per cent solution. We convert the ounce into minims in the proportion, so as to get the product or unknown quantity in minims, instead of in a fraction of an ounce. Another: to make sixteen fluid ounces of a seven per cent solution from a thirty-five per cent— $35 : 7 :: 16 : X$ — $16 \times 7 = 112$ , and  $112 \div 35 = 3.2$ , three and two-tenths ounces, the amount of the strong to use.

Every dentist should have a knowledge of at least these two forms of percentage, and be able to figure them out and make the solutions without his apothecary.—*Cosmos, July, 1900.*

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**INVITING SLEEP WITHOUT DRUGS.** By Dr. J. B. Learned, Northampton, Mass. Read before N. Y. Institute of Stomatology, March 6, 1900. In 1880 a severe injury to the brain and nervous system came to me, and for many years following it seemed necessary for me to learn how to go to sleep. I had become convinced that the effects of hypnotic drug-taking were more damaging than sleeplessness left to itself. After many years' experimenting I became convinced that we could command the conditions, so to speak, in bed as readily as can the soldier and the huntsman prepare an appetite for a dinner. When I used the muscles sufficiently through the day, sleep came readily on retiring; but this was not always the case, and on going to bed I found I was not sufficiently prepared by being "all-round" tired. When I needed muscular exercise, and ran a wood-saw long enough I could readily go to sleep. Gymnastics in the bath-room, with hot and

cold water adjuncts, served a good purpose also. A walk of two or three miles had the same effect. I then felt tired and was ready for sleep.

This mode of preparation, however, has some unattractive features. Dressing and undressing in the middle of the night is one of them. It occurred to me under these circumstances that muscular effort might be employed while in an ordinary recumbent position in the bed. I had found sometimes that the tired sense experienced while engaged in wood-sawing or walking disappeared when I was again in bed, and the sleepless condition reappeared.

What are the obstructions in the way of sleep when we fail to reach it promptly on retiring? I have no time to talk upon remote causes. Omit civilization, tea, coffee, tobacco, the modern cook-book, and the drug habit, all potent factors in preparing the foundations for insomnia. I am to deal with the one obstacle which the brain-worker has to meet immediately on retiring, or at three or four o'clock in the morning, viz., automatic thinking. The brain is a great workshop, with machines, shafts, pulleys and belts; its work is thinking; the power is fresh arterial blood. The immediate obstacle to sleep seems to be automatic thinking. Power being furnished, some belt is on and one of the many nerve-centers persists in operating after hours. Now, since the machine always stops when the power is shut off securely, if we turn off the belt the thinking would stop and sleep come.

Let me outline a few of the simple motionless and invisible exercises that serve generally a very good purpose. Let us take the respiration in hand. Ordinarily the number of inspirations and expirations are twelve or fifteen. Reduce this number to four or six, making each inspiration full, regular, deep, prolonged; and let the expirations be carried on in the same manner. Thus the will-power is employed, and the muscles and respirations are called upon to an unusual extent. A part of the power that was used in the brain to carry on automatic thinking has now been turned into new channels. Keep this new mode of respiration under control, after the manner just described, for a few minutes, and the chances are that an equilibrium has already been established in the circulation, and that the automatic process in the brain has been checked. As soon as this is done sleep comes.

Take another exercise: Immediately upon going to bed measure

your length by reaching for the footboard and the headboard at the same time. In doing this you are exercising a large number of the trunk muscles and the muscles of the extremities. Hold this position for a length of time, until a sense of fatigue comes to the muscles engaged, and sleep may follow. Both these exercises may be carried on at the same time.

Here is another: Remove the pillow for the time being. Lift the head a half-inch from its resting-place; hold it there, lying upon the back, until the muscles become weary; it will take but a very short time. Drop the head now, retaining the same position in bed, and raise the right foot a half-inch from its resting-place. You have now to hold the weight of the clothes and of the foot. The sense of fatigue soon comes to these muscles. Drop this foot and elevate the other in like manner. Hold for the same length of time, until the sense of fatigue is here manifested. Return the foot to its place. If you keep the regularity of respirations during these exercises of head and foot elevation under the constant watchfulness of the will, you have drawn upon the reservoir of power by calling blood to other muscles used, and you have relieved the parts of the brain having an oversupply, which caused the automatic activity.

Still another group of muscles may be brought into use by turning upon the side, lifting the head by the use now of a new set of muscles, hold until, as before, your sensation says "enough," then let the head go down. Remaining on the same side, lift the limb enough to sense the weight of the clothes as before, and hold until the call comes to go down, which you will obey without prolonged exertion. Turn now onto the opposite side, lift the head as before, use the opposite set of muscles, remaining for the same length of time to change as before the limb that is now uppermost. Hold still again the limb with its covering as before until fatigue warns you to drop it.

Still another exercise, which may be engaged in with the same quiet and almost invisible results: Extend your arms by your sides, as though you would reach for the same footboard as before; contract every muscle in the arms; hold as before until the sense of fatigue warns you to change. Every muscle that has been used in these exercises has required the same power that has been in use without our consent or permission to carry on the automatic thinking of the brain. Bringing into use thus the muscles of all parts of

the body, we have called power away from the oversupplied brain. Our method might be termed that of counterirritation. These exercises act as mustard-plasters to draw blood to one part and relieve overdistention in another part.

Now it must be borne in mind that this mode of walking, sawing wood, taking hot and cold baths, going through a variety of gymnastic exercises at the open window, has been duplicated by the exercises we have gone through with in bed without dressing or undressing. Let us remember also that the one aim has been to take away power from that part of the brain whose juvenile pranks have disturbed us for so many nights and to transfer it to other parts. In other words, we have been turning off belts from one shaft and turning on belts to other shafts in this great machine shop.

If the exercises that I have outlined be moderate, no addition has been made to the heart-beats. If persisted in with much exertion the heart beat will be accelerated as it would be by running instead of walking; as it would be by sawing a half-cord of wood in an hour instead of in two hours. Each individual is a law to himself here as elsewhere. The exercises which will fit one case do not so readily fit another, and the amount of exertion which one person can make and endure might be altogether too much for another. So the very moderate efforts which I have outlined, always stopping at the first sensation of fatigue, might be entirely insufficient for some people. The robust, stalwart, vigorous brain-worker, who has allowed his muscles during the day to lie dormant, may well undergo more severe trial than the more slender, more nervous, and more broken man of mature years. Here let me say the condition of the heart, the condition of the lungs, the condition of the nerve-centers, of the digestive organs, and of the general nutrition are all factors in determining just what is best for each individual, not only in his day's work, but in the exercises which I have just outlined to you. Do not overdo it. Heart failure appears as the cause of sudden exit in too many cases.—*International, July, 1900.*

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UNUSUAL CASE OF CARIES. By Frank L. Platt, D.D.S. Read before San Francisco Dental Association, May 14, 1900. The case should properly be called caries of a portion of the superior maxilla. In August, 1896, the patient, a young married woman, apparently in good health and with no history of hereditary stru-

mous conditions, called at the office suffering from an alveolar abscess with fistulous opening at the apex of the root of the upper right lateral incisor. The crown of the tooth had been destroyed by caries and broken off, and the root was so diseased as to preclude any attempt at restoration to usefulness by treatment and crowning.

The root was extracted, the alveolus syringed with a warm carbolic acid solution, and healing followed the operation in the usual time without any manifestation of trouble. In the course of eight or ten weeks a small bridge consisting of an open-faced cuspid crown with a lateral incisor soldered to it was placed in position. For several months there was no evidence of trouble, excepting that the patient said occasionally the gum over the lateral seemed to be somewhat inflamed and painful. On one of these occasions, thinking the lateral might be pressing too firmly on the gum, the bridge was removed, the tooth shortened a little by grinding off a portion of its upper end where it rested on the gum, and the bridge replaced.

For about three years there was no further manifestation of trouble. The patient then complained of pain and discomfort in the right side of the upper maxilla, but was unable to definitely fix its location. An examination showed that the pulp of the second bicuspid was dead and putrescent (the first bicuspid had been removed to make room for the cuspid at the time of its eruption), but treatment of this tooth failing to give the desired relief, the bridge was again removed, as patient said the pain seemed to be located where the lateral had been extracted.

There was no evidence of any abscessed condition for several days, when the patient appeared one morning with the gum somewhat swollen, showing an abscess about to point where the fistula had been before the extraction of the lateral. On opening the abscess a small amount of pus was discharged, and an exploration with a probe revealed a cavity over an inch in depth, extending inward over the hard palate and back behind the cuspid, apparently to the anterior wall of the maxillary sinus. The fistulous opening was enlarged with a 3-16 inch round bur, and the cavity curetted as well as possible through this opening.

Treatment with hydrogen dioxid and a 5 per cent solution of protargol gave immediate relief, but the presence of carious bone being detected by means of a probe, a further operation was deemed necessary. The patient was placed under ether, and the second



bicuspid removed. This disclosed the fact that the carious cavity was quite extensive, and the cuspid being held in place by only the outer alveolar plate, it was extracted. The cavity was then thoroughly curetted with a sharp spoon curet, and all portions of carious bone were removed by use of a large, sharp bur. During the operation too profuse hemorrhage was prevented, and all hemorrhage kept under control by a solution of the extract of suprarenal capsules, 20 grs. to the oz., applied on tampons of absorbent cotton. The margins of the opening were carefully trimmed and the edges of the alveolar process smoothed as much as possible by the use of the bur and bone-cutting forceps. The cavity was then thoroughly washed with a hot 5 per cent solution of protargol and packed with moist iodoform gauze. This treatment has been continued daily (excepting Sundays) for the past four weeks, and the wound is now healing very rapidly. On two or three occasions a treatment with hydrogen dioxid has been demanded to remove slight traces of pus.

The interior surface of the cavity was covered with healthy granulations within ten days, and it is now filling up as rapidly as could be expected. To prevent the lip from being drawn down out of position by adhesions during the healing process, and to improve the appearance of the patient, a plate was put in position the third day after the operation, having a flange extending high up under the lip. Later this will be replaced with a removable porcelain bridge or partial continuous gum denture.

The points to which particular attention is directed are the length of time when there was almost entire freedom from annoyance, a period of nearly three years; the fact that the gum healed completely after the lateral was extracted and presented no fistulous opening whatever, nor was any discharge of pus present, and also the use of protargol as an antiseptic of great value in treating similar cases where caries of the bone is one of the leading factors.—

*Pacific Gazette, June, 1900.*

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**HYGIENE OF THE EYES.**—A famous oculist once gave this advice: "Use much cold water in washing the eyes. It is a tonic to them. One's sight begins to fail as the eyeball begins to flatten, so when you bathe the eyes, gently squeeze them from side to side—the forefinger at the side of the nose, the thumb at opposite side of the eye—and thus the convexity will be preserved. When the eyes are weary give them rest, and if they smart bathe them with a weak salt water, allowing it to go inside the lids."—*Health.*

## Letters.

### BALTIMORE LETTER.

BALTIMORE, MD., Aug. 17, 1900.

*Dear Digest:* Whe-ew! Never touched me. But my, what a jar. Have you heard how unhealthy it is for birds in these dig-gins? How the Honorable Secretary of State, Mr. Hay, having had his rest disturbed by their chirpings has employed a special policeman, backed by the authority of the government of this Grand and Glorious, and at present writing almost undefinable, United States, to keep the birds from making so much noise? I presume the Honorable Secretary derived his inspiration from the following lines of Eugene Field:

"There once was a bird that lived up in a tree,  
And all he could whistle was Fiddle-de-dee;  
A very provoking, unmusical song  
For one to be whistling the summer day long.  
Yet always contented and busy was he  
With the vocal recurrence of Fiddle-de-dee.  
Hard by lived a brave little soldier of four,  
That weird iteration repented him sore.  
I prithee, dear mother mine, fetch me my gun,  
For by our Saint Didy the deed must be done,  
I shall presently rid all creation and me  
Of that ominous bird and his Fiddle-de-dee."

With all this inspiration, with all this authority, high dignitary and pneumatic-gun-armed policeman coming my way, you certainly could not expect me to utter a note. Here I am at it again, however, as chipper as before, and how? Why, I just "fixed" the policeman, and now I can keep open all day Sunday if I desire. One condition only—I must not attack his honor, the Secretary, nor the government of the Grand and Glorious. The former's recent flirtation with the almond-eyed damsel of the east has evidently afflicted his nerves, made him more sensitive. The fact is, Oriole is not disposed to attack anybody or anything. It is too stinging hot for attack unless a fellow had the sharpened bill, the malaria bag, and the ubiquity of the Jersey mosquito. Oriole prefers leafy bowers and shady nooks with the chance to plan a fall and winter campaign.

Well, the summer meeting is over, and comments indicate that no records were broken; the wheels of professional organization and effort simply revolved with commendable regularity and energy; no spurts; no brass band flourishes; no upsets or runaways. The distance was simply traversed in a comparatively uneventful manner. And why not? Healthy growth and development are invariably regular and even. The novelist and romancer would lose his job if the historian could describe truthfully nothing but thrilling moments. One thing we congratulate ourselves upon (no mean record), good feeling prevailed during the entire meeting. I scarcely recall an occasion when so many disagreements were adjusted and so much bitterness buried—not all lime-juice either, but rancor and hatred which have distressed and divided friends and followers on all sides. Let us give thanks for this getting together of our friends.

In one particular the meeting was a failure, the good feeling referred to did not extend to the stomach. Never do I remember to have seen so much distress on account of physical disability. Intestinal infection was almost universal. Everywhere in the secluded corridors one was liable to find in the person of a friend a woe-begone picture of suffering and sadness. It recalled to mind what met the eye of a traveler in the days of early western emigration, who came across a dilapidated wagon upon the pole of which sat a solemn and solitary urchin. In response to the inquiry, "What's the matter," he replied: "Wall, mam died last night, baby brother's got dia'ree, pap's gone to hunt for water, and I'm powerful lonesome."

One might think that when a crowd gets too big to suit the convenience of cooks at hotels they just thin out the eaters at will. Oriole visited the kitchens to see if he could form any idea of how it was done. Arriving there he found a temperature of about 150 degrees, and over cans and cauldrons of cooking food stood immense negroes doing the dipping act, with perspiration running from them in streams. This was Friday. Two soft boiled eggs was the total of my orders from then until Sunday night. Of course what made the crowd sick is "another story." I record this only by way of apology or explanation to the head cook for so persistently ordering soft boiled eggs. The order is off.

Why would it not be a good idea to have our own cooks and pro-

viders at each meeting? When the National comes South again let it meet at Baltimore, and Oriole will charter a steamboat for a three days' cruise on the Chesapeake and its tributaries. I'll bet we could have a corking (and uncorking) meeting that way. The best of food could be obtained, the weather would be delightfully cool, and best of all, the audience could not escape. But, Mr. Editor, I did not intend to talk shop in this letter. The weightier matters will come in at a later date. I hope the western contingent reached home safely. Cordially, ORIOLE.

### NEW YORK LETTER.

NEW YORK, Aug. 25, 1900.

*To the Editor of The Digest,*

MR. EDITOR:—We are struck with the large number of obituary notices that come to us each month. Too many dentists die young, and not necessarily because they are good. If the old adage were true your correspondent must not be among the blest, for we have passed our sixty-ninth birthday. An English writer once said that we "would die of Riggs' disease," but we trust not.

Dr. B. J. Perry died suddenly this month, leaving a good practice. He has been well known in New York for the past twenty-five years. He was a native of Worcester, Mass., and studied his calling there before coming to this city.

From the daily papers we see that the "Plastic Material Metal Covering Co." has been incorporated in Jersey City at \$1,000,000, and thereby hangs a tale. It seems that moneyed men are to compose a company now being formed, whose object is not only to make dental supplies but also to enter into the actual practice of dentistry throughout the world. The plan is to establish offices in all large centers and to employ available dentists under salary, each office of course to have a financial manager. It means going into the practice of dentistry as a business and on a business basis. It is rumored that Astor Court in the rear of the world-famed Waldorf-Astoria Hotel is aimed at for a starting point. We have often thought that if dentistry could be practiced by a syndicate it would be. The financial standing of the incorporators of this enterprise insures a higher grade of management than that of the ordinary painless dental parlors.

We do not see that anything can be done by the professional body

against these innovations. We have watched closely all these deviations from professional lines, and fully believe that the public has its own opinion, and that nothing which can be said or done will deter a certain class from patronizing advertisers. Some very intelligent people sometimes go astray, but they generally come back better suited with the regular practitioner than before.

Through a patient just now in our hands we learn that Dr. Geo. Phelps of Columbus, Ga., is critically ill with paralysis. He formerly operated for this patient, and she has many excellent fillings to show for it. They were made twenty years ago with sponge gold.

In conversation recently with Dr. St. George Elliott, the question of office rents came up. For many years back parlors could be rented for \$50 per month, and the front ones used for reception rooms. This, too, in good localities. Now the dentist must pay \$75 to \$100, without a reception room. The large office buildings which are coming more and more into favor here will probably soon get many dental tenants, as is the case in Chicago especially, where five or six hundred men have offices within a radius of one-half mile.

From all accounts it appears that a much smaller number of men went to Paris than was expected. We hope the Dental Congress will be more of a success than the Exposition itself has proved.

We see by a Maine fishing paper that our Dr. S. G. Perry is at Kennebago Lake catching trout by the hundred. The Doctor suffers yearly with hay fever, and as it does not prosper in that region he has doubtless gone there to escape it. We envy him—not the hay fever, but the fishing.

We understand that the recent meeting of the New Jersey State Dental Society was a great success, as usual. We do not think that Jersey men are any smarter than those in other states, but they certainly have more push and enterprise. Although the number of practitioners in the state is not nearly so large as in many others, all the society meetings are interesting and valuable and far above the average. With so many energetic men there are bound to be differences of opinion, but in the main we do not see that they have any more difficulties than other similar organizations. One surprise of the last meeting was Dr. J. N. Crouse's presence. He was in the East at the time on Protective Association matters, and learned

that rumors had been circulated to the effect that he was afraid to attend the New Jersey meeting, so of course he went. What happened is well described by the New York correspondent of the *Dental Review*, whom we quote:

“Next came a surprise—yet it was what one might have anticipated from Dr. J. N. Crouse. He had asked for the privilege of the floor and was promised a few minutes at the close of the morning session. He was there when the session opened and sat patiently until just before adjournment, when in a very nice way he opened his subject about Dental Protective litigations, and suits against Association members in various states, etc., gradually leading up to the action of the half dozen or so prominent Jersey dentists who settled with the Crown Company so hastily for nominal sums. He said he had called them traitors, but stood ready to apologize if it could be shown that he was in the wrong; but if he was not, he expected the guilty ones to apologize, not to him, but to the profession at large. When he had concluded a silence fell upon the multitude such as rarely occurs. They awaited the apology, ‘which never came’—openly. ALMOST every man who paid the small fee of varying amounts got on his feet with an excuse, and ended by saying that if he could have known what he now knew, he never would have paid the Tooth Crown Company for his release. Dr. Osmun defended his position well, and it was most tenable. He had been sued by the Crown Company years ago, before the organization of the Dental Protective Association, and they had recovered from him. He had telegraphed Dr. Crouse this time asking what to do, and he also consulted his lawyer. Dr. Crouse being undecided what best to do in his case, and his lawyer urging him to settle, he did so, but if he had known —, etc., he would not have done so. Dr. Stockton, who was first to speak, pleaded the necessity for maintaining his credit in the business world as his excuse, saying that at the time he was so financially embarrassed that he was obliged to settle, and he could not afford to let it be known he was sued. Dr. Sanger had the floor, and showed fair cause for his action, showing that that Dr. Crouse had approved of his course, and also said that checks from some of his colleagues were shown him. Drs. Meeker and Riley made very poor showings; they were sorry, etc., etc. Dr. Holbrook was defiant. He had no excuse to offer and did not see that any apology was due. It is said that the agent for the Tooth Crown Co. is a particular friend of one of these gentlemen who procured the agent the position with the Crown Co. (?) and who introduced him to the members of the Jersey society.

“However all this may be, with the ending of the last explanation to Dr. Crouse the morning session of the society ended. Dr. Crouse evidently found nothing to apologize for, but had accomplished what he was after. He had bearded the lion in his den and

came away rejoicing. Counsel for the Protective Association—Mr. Offield—was present, but had nothing to say in open meeting. Evidently Dr. Crouse quite plumes himself on the outcome of the meeting, but it is not quite so certain that everything is his way, despite a resolution of confidence in him which was duly passed. A large number of dentists in New Jersey have been sued and their cases are in the hands of the Association lawyer. Recent developments as concerns Dr. Stockton, his having been compelled to go into bankruptcy within the last two weeks, bear out his contention. It seemed to us at the time that Dr. Crouse owed an apology to Dr. Stockton rather than the reverse. It was not a pleasant thing to feel that such a one as Dr. Stockton should be compelled to lay bare his business troubles to shield his course in a matter in which his long, honorable career should have been a sufficient answer. Apparently the Jersey men were 'lame.' They had been 'kicked' some time ago, and were now willing to be 'kicked some more.'

"If we remember correctly, it was intimated in Dr. Crouse's first article, in which these Jersey men were called 'traitors,' etc., that 'all these checks 'had strings to them.' It was not in evidence at this meeting that *any* of them had strings, though there were hints of a 'game of poker' and sundry 'I have heard so's' and 'it is reported.' But no one doubts that Drs. Stockton, Osmun and others did *actually* pay, and have *not* had the money or its equivalent returned.

"It was most surprising to observe the quiet 'Methodist-class-meeting' air that pervaded the audience. How meekly each 'brother' related his experience, *most* (not all) ending with 'had I known what I know now I would not have done as I did.' 'After the horse was stolen,' etc. Altogether it was 'washing dirty linen,' which seems to have been the fate of the New Jersey State Dental Society for the last few years."

It has been terrifically hot in New York, so that we do not wonder at the large number of absentees. Other cities, however, have not been spared, so we cannot complain. Cordially,

NEW YORK.

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**PEROXID OF HYDROGEN AS A LOCAL ANESTHETIC.**—I have not seen anywhere peroxid of hydrogen spoken of as a local anesthetic, and as it has proved very satisfactory in my hands I venture to mention it. Injected under the epidermis it produces immediate and complete anesthesia of the whole skin. I have used it for over a year in opening abscesses, cutting off redundant tissue in ingrowing toe-nails, opening the pleural cavity, and in one case the abdominal cavity. I do not think any absorption takes place, as the intercellular inflation from the gas generated seems to produce such pressure that the skin cuts like frozen tissue.—*H. E. Kendall, M.D., in Med. Record.*

# The Dental Digest.

PUBLISHED THE TWENTY-EIGHTH DAY OF EVERY MONTH

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Where All Communications Should be Addressed.

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## Editorial.

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### MASSACHUSETTS CASES DISMISSED.

It will be remembered that on Sept. 30, 1899, eight dentists of Boston were sued by the International Tooth Crown Co. for sums varying from \$5,000 to \$7,000. Their real estate was attached, and marshals were placed in their offices. These men were Edward M. Currier, John F. Dowsley, Thos. Fillebrown, A. H. Gilson, F. M. Hemenway, H. D. Osgood & Son, L. D. Shepard. They telegraphed the facts to the Protective Association, and that organization at once furnished a bond of \$45,000 and secured release of the attachments and removal of the marshals. The Association's attorney, Mr. Offield, immediately left for Boston and took charge of the cases. Since then we have been endeavoring to force the Crown Co. to bring these cases to trial. That corporation attempted to secure an order from the Court of Appeals in Massachusetts, compelling the members sued to bring their books into court and have an examination of them before a master, but the Court refused that order and pronounced the procedure illegal. We now learn that the Court has dismissed all these suits because the Crown Co. refused to stand for trial when the Association was ready and also failed to produce a bond for costs.

While the danger to these particular men is practically past, we are pleased to state that the Crown Co. is still liable for damages because of the annoyance to which these dentists were subjected by having marshals in their offices for a few days.

The fight is by no means over, as there are other suits pending, and we do not doubt that the Crown Co. will push cases in the east and especially in and around New York, as that is the district wherein they obtained their favorable decision last year. Since, however, the Protective Association has been able thus far to checkmate every move of the Crown Co., we believe it deserves the credit of preventing the abuse and hardship which would otherwise have



fallen on members of the dental profession had not such an organization been ready to assume the defense of all cases.

As regards the New Jersey suits, we stated last month that the Crown Co. were trying to compel the dentists sued to bring their books into court and have an examination of them before a master in chancery. The Association's attorney fought this move and refused to have his clients appear in court. The attorneys of the Crown Co. failed to obtain a contrary order, and as court is not in session the matter must lie over until October.

### FOREIGN RELATIONS COMMITTEE REPORT.

We have just received the report of the Foreign Relations Committee of the National Association of Dental Faculties, which we publish elsewhere in this issue. A reading of same will show the great work which the Association is doing through this one committee alone. We are not in possession of the proceedings of the last annual meeting of the Faculties at Old Point Comfort, and so can not discuss the entire work, but we believe most of the improvements and advances made in our educational system are largely due to this organization, so that it is one of the most important factors connected with the dental profession.

The report in question discusses at length the problem of bogus diplomas issued by chartered institutions which make a business of selling same. While such fraudulent colleges do to some extent bring discredit upon the work of legitimate schools, it can be only brief in its effect. Especially will this be true when the work of the Faculties' Association is more universally recognized and better understood. This can be brought about by this same Foreign Relations Committee if it keeps up the labor so well begun.

So long as we can remember this selling of bogus diplomas has been carried on, and it has had but little effect in this country, for the American public is not fooled very much by either a bad or good diploma, if the holder is incompetent to render good dental services. The very fact that anyone is willing to give money for a bogus diploma is proof positive that he is dishonest and therefore unfit for the responsibilities of a practitioner. We believe it is what the individual can accomplish rather than the holding of a diploma that gives him influence. Furthermore, we believe that the dentists who have gone to Europe and made reputations did so because of their

superior skill and not on account of their holding a degree. It is not strange, however, that disreputable characters should endeavor to derive benefit from the reputation built up by these American dentists abroad, and in so doing bring discredit upon all our practitioners in foreign lands.

It will of course not be understood that we are arguing against diplomas, for we heartily believe in legitimate ones and in good college training. This committee of the Faculties' Association can accomplish a great work by familiarizing the people of Europe with the objects and aims of the Association and by showing what thorough work is being done in the schools of that organization. If this committee continues as well as it has begun there is no reason why the unification of requirements and laws can not be brought about, so that a diploma from one of our recognized schools will entitle the holder to practice in any country. This object will be attained when the different states of this country can agree upon a unification of the dental laws. Whether or not this work lies within the scope of the Faculties' Association or the State Boards of Dental Examiners, we believe that by working together they can attain this greatly desired result.

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### THE BLAME PLACED IN NEW JERSEY.

On page 609 of this issue will be found a very fair report of what transpired during the talk on the Protective Association at the recent meeting of the New Jersey State Dental Society. We must, however, differ with the correspondent on one or two points—"It is quite certain that everything is our way." The fact that members of the Protective Association in New Jersey have been sued binds them still closer to the organization. Their cases are being carefully watched, and there is no doubt that the ultimate outcome of the suits will be in the defendants' favor. Despite the fact that we severely censured some of the most prominent practitioners in New Jersey last fall for their action in settling with the Crown Co., which criticism might have alienated them and their many friends, we were never more cordially received, or the cause of the Association more warmly upheld than at the recent meeting. We have no hesitation in saying that at the present time we have the absolute confidence of almost the entire profession in the state.

We have been criticised for our severe arraignment in the Decem-

ber, 1899, DIGEST of the dentists who compromised with the Crown Co. to avoid suit. We stated at that time that they were in collusion with our enemies and that their action was intended only to shake confidence in the Association. It is a sufficient justification of our course that the dentists who settled, excepting the notorious Holbrook, have since publicly explained the circumstances under which they were constrained to this action. If they had been in possession of all the facts, especially one which we are about to divulge, they would never have made terms with the Crown Co. While we do not feel that any apology is due them from us, we regret in the light of recent developments our severe language used last December concerning those dentists who paid money to the enemies of the profession under duress or a misunderstanding of the facts. Their action fortunately has not produced any important results. The Crown Co.'s object in forcing these particular settlements was to establish a precedent. This object was not attained, as no more members have paid tribute since that time, and the minions of the Crown Co. have not succeeded in hoodwinking the dentists of New Jersey or any other state.

It was evident at the time of the unfortunate occurrence last December that C. W. F. Holbrook of Newark, N. J., was the real traitor, as it was understood that he was an intimate friend of the Crown Co.'s attorney, and that he procured him his position with that corporation. Furthermore, that he was instrumental in inducing the other dentists to compromise. The attack on the Protective Association and its management which he made in April, and which was printed in two or three dental journals, also showed on which side he stood.

It was possible only recently for us to obtain the court records in the case of the Crown Co. vs. James Orr Kyle, in which the latter was a relative of one of the Crown Co.'s officers, and part at least of the expense of whose defense was met by that organization. This is the case where the Protective Association was not represented, and which the Crown Co. won on July 31, 1899, through queer methods. The aforesaid record shows that C. W. F. Holbrook *voluntarily* went to New York and gave elaborate testimony in the interests of the Crown Co. We know he did this voluntarily because the Crown Co. could not have compelled him to leave his own state and go to New York to testify. We do not know whether or

not this Holbrook has any pecuniary interest in the Crown Co., but his actions certainly lay him open to that suspicion. At any rate our charges that he is interested in and working for the Crown Co. are sustained. If such proof as we have offered does not convince those who upheld and defended this tool of the Crown Co. we do not know what will.

## **Notices.**

### **FIRST DISTRICT DENTAL SOCIETY OF ILLINOIS.**

The eighteenth annual meeting of this body will be held at Galesburg, Sept. 25-26, 1900, and the profession are cordially invited to be present.

A. G. SMITH, Sec.

### **SOUTHERN CALIFORNIA DENTAL ASSOCIATION.**

The third annual meeting of this society will be held at Santa Barbara, Cal., Oct. 8-9, 1900. The profession in the vicinity and state are cordially invited to be present.

L. E. FORD, Sec., Los Angeles.

### **MICHIGAN STATE BOARD OF DENTAL EXAMINERS.**

The next meeting of this organization will be held at the Cadillac Hotel, Detroit, Oct. 9, at 9 a. m. Candidates should present themselves at the first session.

F. O. GILBERT, Sec., Bay City, Mich.

### **ILLINOIS STATE BOARD OF DENTAL EXAMINERS.**

The next meeting of this board will be held in Chicago Oct. 5-6, 1900. Those desiring to take the examination should notify the secretary ten days before date of meeting.

J. H. SMYER, Sec., 70 State St., Chicago.

### **NEW JERSEY STATE DENTAL SOCIETY.**

At the thirtieth annual meeting of this society, July 18-20, 1900, the following officers were elected for the ensuing year: Pres., F. Edsall Riley; V. P., W. L. Fish; Sec., C. A. Meeker; Asst. Sec., H. S. Sutphen; Treas., H. A. Hull; Ex. Com., H. S. Sutphen, O. Adelberg, F. L. Hindle, W. H. Pruden; Membership Com., C. M. Holden, W. W. Hawke, A. Irwin, J. L. Crater, W. Woolsey. Member State Examining Board, J. Allen Osmun.

### **NORTHEASTERN DENTAL ASSOCIATION.**

The sixth annual meeting of this organization will be held at "Eloise," Providence, R. I., Oct. 16-18, 1900. The committee has secured the most desirable and commodious building for the meeting ever obtained for such a purpose, and strenuous efforts are being put forth to make this gathering in every way the best ever held in New England at least. The results thus far have been most gratifying, and prominent men of the profession have been

secured for papers and clinics. The exhibits will be large and so separated from the scientific portion of the meeting that neither will disturb the other. It is earnestly hoped that a large attendance will result.

EDGAR O. KINSMAN, Sec.

#### RESOLUTIONS ON DR. MENGES' DEATH BY INDIANA STATE BOARD OF DENTAL EXAMINERS.

**WHEREAS**, The late Dr. Theo. Menges, by untiring energy and devotion to the cause of dental education, has rendered inestimable services toward progressive dentistry and dental science; and,

**WHEREAS**, The dental profession of the world and dental educational institutions of the United States have suffered an irreparable loss by his untimely death, and the Northwestern University Dental School, its teachers, and numerous graduates the loss of a faithful friend and counselor; therefore, be it

*Resolved*, That this board express its sympathy to his bereaved wife, and its regrets to the Northwestern University Dental School and its teachers and its graduates for the loss sustained in the death of their Napoleon of dental education.

M. A. MASON, Sec'y.

#### REPORT OF THE FOREIGN RELATIONS COMMITTEE OF THE NA- TIONAL ASSOCIATION OF DENTAL FACULTIES.

[Reported and Adopted at Old Point Comfort, Va., July 14, 1900.]

During the past year the work of the Foreign Relations Committee has been materially extended. Advisory boards in most foreign countries have been provided for, and appointments made to fill them as fast as sufficiently definite information to enable the committee to do this properly could be obtained. Pamphlets containing an exposition of the work and the aims of the National Association of Dental Faculties have been printed and circulated in foreign countries, and a number of circulars of information for members of our foreign advisory boards have been printed and mailed to them.

It is unfortunately the fact that, because of the lack of uniformity in the educational systems of the different states, and the absence of any general supervisory authority on the part of the national government, under some unwise local legislation it has been possible for irresponsible, unqualified and unscrupulous men to secure charters for institutions empowered to grant degrees, and under such authority to issue, for a consideration, irregular and fraudulent diplomas. This traffic has principally been with men in foreign countries, who, primarily the guilty ones, have sought to obtain academic honors without the labor necessary to honestly acquire them. As these institutions have been conducted under pretentious names, it was formerly impossible for foreigners who had no intimate acquaintance with American educational affairs to distinguish between the regular and the irregular schools. The organization of this association has established a criterion by which they may be judged, only those owing allegiance to the National Association of Dental Faculties being recognized.

It is unfortunate that the professional situation in America has not in past years been better comprehended in Europe. All our schools have been held responsible for the vile work of the fraudulent ones—nominally located in this country, but chiefly supported by unprofessional men from abroad. There has even been a grave misapprehension of the objects of this association, and the work of the Foreign Relations Committee has in some instances

been totally misconstrued. All of us are aware that while some of the very best and ablest American representatives have located in foreign countries, and to whose professional career we can point with pride, it is unfortunately the case that some Americans of a different professional reputation have gone abroad and have indulged in practices as offensive to our foreign *confreres* as they are to reputable American practitioners. There are many more unworthy foreigners who have legitimately or illegitimately become possessed of an American degree, and who without warrant of right claim the title of "American dentist".

The belief is prevalent in certain foreign professional circles that it is the aim of the National Association and its Foreign Relations Committee to obtain for all such persons professional recognition, and to demand the acceptance of their American degree by the governments of foreign countries. It is but proper that we should in the most authoritative manner deny any aspirations of the kind. This association has not in the remotest manner contemplated any interference with or protest against the laws or regulations governing the practice of dentistry in any foreign country. It has not primarily been the object of either the National Association or its Foreign Relations Committee to attempt to secure for the American dental degree any legal recognition as a qualification for foreign practice. It is not usual in the American states which have legal professional regulations to receive the diplomas of any foreign professional school as a qualification for practice, and we cannot consistently ask that which we refuse to others.

It seems but proper that we should publicly avow the reasons that have prompted the better colleges to form this association of schools, and to appoint a committee charged with the duty of harmonizing our relations with the dental profession in other lands. We seek for the distinctive American dental diploma nothing more than the consideration which its merits demand. If its reputation has been debased by the circulation of counterfeit diplomas, it is something for which we are in no way responsible. In the formative educational period, when dental schools existed nowhere save in America, and when even dentistry itself was undefined, empirical, tentative, with no distinctive line of practice and no clearly prescribed curriculum of study, the newly adopted degree may have been conferred in some instances on insufficient acquirements. The experiment of establishing a special dental educational course of study, and thus laying the foundation for the broad profession which exists in all civilized countries to-day, was tried first in America and here tested for the whole world. There were no precedents for our guidance, and no earlier successes or failures to stand as landmarks. We were the absolute pioneers, and it would be little wonder if we made some errors.

Since that day other countries have drawn professional lines and marked out, each for itself, a distinctive course of procedure. Each of these varies somewhat from the others, and perhaps all from that originally established in America. If dentistry is to be accepted as a profession at all, or as a distinct branch of a great mother profession, it must be broader than is any state; it cannot be confined by any bourne nor limited by mountains, rivers or oceans. There should be no American, English, German or French dental profession, except as each is a part of one undivided whole. Realizing all this, the National Association of Dental Faculties was organized for, and has been constantly laboring to attain, these definite purposes: First. To establish a broad and generally accepted curriculum of dental study, and by the combination of all the better dental schools of America to bring each up to a uniform standard of excellence. Second. To establish a clear line of demarkation between the regular and the irregular schools, and to force out of existence the latter. Third. Gradually to raise the standard of preliminary education until none but such as has the general erudition that should distinguish a professional man can be accepted in American dental colleges.

These were the principal objects in view, and in the attainment of them success has been secured exceeding the most sanguine expectations of the founders of the movement.

In the development of its plans the association met with many obstacles, and found itself laboring under great embarrassments. One of the chief of these was the lack of information concerning professional affairs in foreign countries. The association decided, as far as was in its power, to cooperate with the worthy dentists of other countries in the laying down of certain broad principles which must be the foundation upon which any true professional practice could rest. Any international cooperation must be based upon a complete knowledge by each of the methods and aims of the others. There can be no concurrent effort without mutual comprehension and intelligence.

Another perplexity was found in the fact that in establishing the preliminary qualifications for matriculation in American colleges there was no rule by which to judge of the value of certificates presented by foreign students. After completing the course of some foreign school, a student, who perhaps spoke only a strange language, sometimes desired to conclude his studies by taking as much of the American course as would enable him to finish it, and he demanded of some American college advanced standing of one or more years. His certificates were in a foreign tongue, and in some instances were found either forged or not that which they were represented to be.

In this emergency, at the earnest request of certain American dentists practicing in foreign countries, who had been scandalized by the acceptance in America of students with improper certificates, a committee, to be called the "Committee on Foreign Relations," was appointed, and was charged with certain definite duties: First. It was to be in all things subordinate and subservient to the National Association of Dental Faculties, to which body it must make a full report each year. Second. It was empowered to appoint advisory boards of not more than three members in each foreign country having any professional relations with America, whose reports concerning foreign qualifications might form a basis for action in this country. Third. It was to have jurisdiction in all foreign educational questions affecting American dental colleges. Fourth. It was to obtain definite information concerning dental regulations and laws in foreign countries; to learn what were the curriculum and requirements of all foreign dental schools, with the view of determining what value should, under American laws and regulations, be given their certificates of study, either as a qualification for dental practice in America or for admission to advanced standing in American dental colleges. Fifth. It was charged with the duty of ferreting out institutions engaged in the granting of irregular degrees or degrees irregularly, and instituting measures for their suppression.

In compliance with the first enumerated duty your committee makes this report of what it has done during the past year, and appends the recommendations for future action which its experience leads it to believe advisable. It has earnestly striven to carry out what its members believed to be the wishes of this association, and it has had no policy of its own to inaugurate or attempt to enforce. It has in all things been governed by what it believed to be the spirit of its instructions.

Concerning the second business your committee begs to report that it has divided the various countries of both the Eastern and Western Hemispheres into convenient groups, and has appointed boards for each, so far as the information obtainable has warranted. In making such appointments it has deemed the following qualifications essential: First. The appointee should be a regular and reputable dentist, possessing the legal qualifications of the country which he represents. Second. He must be a graduate of some reputable American dental school, or possess an acquaintance with the curricula of American schools, and be familiar with American dental professional methods.

In the discharge of the third duty your committee has met with great embarrassments. At the very outset colleges, members of this association, appealed to us to know what consideration should be given to certificates showing that proposed students had taken the full course in schools located in Japan and Mexico, which purported to teach the whole dental curriculum. Your committee could not learn that any schools giving a course in dentistry that could be accepted as an equivalent for any part of that demanded by this association existed in either country. They therefore ruled that students from either could be accepted only as members of the freshman class of American dental colleges, and then only if they complied with the rules of the association so far as preliminary education and a knowledge of the English language are concerned. This ruling was cheerfully accepted by the schools that had raised the question, and we present it as an encouraging proof of the loyalty and anxious desire for a high standard that exists among the recognized dental colleges of America.

But the discussion of this raised the question of the consideration that should be given to the certificates of study from any foreign dental school. Our rules provide that no credit shall be given to certificates from any American dental school whose curriculum and regulations have not received the formal approval of this association. Could we, in the name of the National Association of Dental Faculties, approve the giving of advanced standing to students from the schools of other countries that had not the same stamp of regularity? That is, could we extend to foreign and unknown dental teaching institutions privileges that were positively forbidden to American schools? It took but a short time to arrive at the inevitable conclusion that we could not approve the giving of advanced standing to graduates or undergraduates of any foreign dental school whatever until such school had received the formal indorsement of this body.

In the discharge of the fourth duty your committee is in possession of a very voluminous mass of correspondence and reports, which it has earnestly labored to reduce to some system.

Under the fifth head a great deal has been accomplished. The same legal counsel employed last year has been retained, and the same general course has been pursued. It is probable that more fraudulent diplomas have been sold in foreign countries during the past year than ever before. This is due to the fact that those who have been carrying on the traffic realize that, because of activity in their prosecution, the time for accountability is near at hand, and they are striving to make the most of the present opportunity.

It is urged by foreigners that this business should be summarily stopped. Such people little know the difficulties in the way. In the first place the traffic is mostly with foreigners. As their illegitimate diplomas are wholly worthless in this country, no state board of examiners recognizing them in any way, those who are engaged in the business carefully cover their tracks, and no responsible man can be located. Attempts to entrap them by means of decoy letters have failed, some such having crossed the ocean a number of times without delivery, being forwarded from one of their foreign agents through whom the nefarious business is carried on to another, until finally returned to the writer by the postoffice authorities. Fictitious names are signed to the pretended diplomas, so that it has been found almost impossible to fix the guilt upon any person. Our friends in foreign countries have contented themselves with bitter reproaches against American colleges generally, without forwarding any testimony that would assist in the discovery of the guilty ones. The fraudulent institutions could not by foreigners be distinguished from the regular colleges, for they were in possession of charters regularly granted under a vicious law of the state of Illinois, whose entire repeal it had been found impossible to secure, because the interests of legitimate enterprises were inextricably bound up with the illegitimate ones.

Your committee early discovered that working alone it could accomplish



little. The Board of Health of the State of Illinois was taking the matter up, and possessed advantages for the prosecution of the lawbreakers which were not within our reach. We have therefore contented ourselves with co-operating with that board in every way possible, and our counsel has been instructed to offer them any assistance within our power. As a consequence we have great pleasure in reporting that, acting under the United States law, which forbids the use of the mails for fraudulent purposes, the worst of these offenders have finally been apprehended and committed to jail in default of the heavy bail that was demanded. What is of more importance, if possible, the United States mails are closed against the transmission of their correspondence, and letters to or from them are promptly sequestered.

The greatest offender was last year named in this report as "The Independent Medical College of Chicago." We secured the annulment of the charter of this affair, but in a very short time we found that the same men were yet engaged in the business under the name of "The Cosmopolitan Medical College." They had offered for sale no less than thirty-six different diplomas in all the branches of science and art, and since the forfeiture of the charter under which they first worked it is believed they have sold more than a thousand fraudulent diplomas, at prices varying from ten to five hundred dollars each. Proof sufficient to secure the cancellation of the first charter was obtained only through the inordinate cupidity of the man who was chiefly responsible. He paid a debt of some thirty dollars due to a stable man or hostler, by issuing a diploma to him and making him a professional man. The recipient, when he found himself under arrest for attempting practice under it, betrayed the swindler, and we were thus able to fix his guilt.

The late proceedings against this man and his associates have developed the fact that they were in possession of no less than *twenty four* different charters, all regularly issued under that mischievous Illinois law, which was enacted for beneficent purposes. We have now learned the methods of these men, and it is believed that it will soon be possible to put an entire stop to their villainous traffic, through the imprisonment under the United States postal laws of those engaged in it. Too much credit cannot be given the Board of Health of the State of Illinois for the active part it has taken in the suppression of these miserable pretenders that have so long been bringing discredit upon our legitimate and excellent educational institutions.

#### REPORT CONCERNING FOREIGN EQUIVALENTS.

It must not be forgotten that the system of dental instruction in Europe varies very widely from that of our special American dental schools. Instruction separate from that given in the medical schools or universities is very rare, and the practical training which forms a part of our curriculum is usually given by private preceptors. Your committee does not feel at liberty to recommend the acceptance of an oral and theoretical course as the equivalent for one including practical work. We cannot believe that the certificates of private and irresponsible practitioners can by us be accepted as any part of a college course, and hence we have given them little consideration. It is quite probable that in some instances we have recommended that one year's advanced standing be given the holders of some certificates when further knowledge might show that they should be admitted to our senior classes, but we have thought it wisdom to err upon the safer side.

*Australia.*—A very complete report from the various colonies of Australia and New Zealand has been made by the advisory board appointed for those countries. It would appear that in most of the colonies there is no dental legislation, but Victoria has lately secured a law analogous to that of England, and in Melbourne a dental school has been organized whose curriculum, from the partial syllabus furnished, seems to be a comparatively broad one. The dean of the "Australia College of Dentistry" is an American

graduate and appears to have the confidence of the dentists of Australia. Your committee is unable positively to determine whether the school in all respects comes up to our minimum requirements, but this it has directed its chairman definitely to ascertain, after which your committee will be prepared to recommend to this body some proper action. There has also been established in Melbourne, Province of Victoria, the "Dental College and Oral Hospital of Victoria," but your committee is not at the present time in possession of sufficiently definite information to enable it to offer any recommendation concerning it.

In the provinces of Western Australia and Tasmania no dental legislation has been secured.

There is a dental law in New Zealand, and the member of the advisory board from that province has furnished your committee with an abstract of it. There are no dental schools in the province.

*Switzerland.*—Full reports from this country have been furnished by Dr. Bryan. It is a republic analogous to our own country in some respects, the federal union being composed of separate cantons. There are some excellent universities which offer certain facilities for dental study, but their practical instruction, we believe, cannot be accepted as an equivalent for that offered by American dental colleges. Your committee recommends that holders of the Swiss national diploma be given one year's advanced standing in the schools of this association, but that no consideration be at present extended to holders of the cantonal qualifications.

*Spain*—Complete reports have been furnished by members of the advisory board. The Spanish requirements in medicine are very high, but your committee cannot learn that there are any dental schools, or dental departments of universities, whose course of instruction can be accepted as the full equivalent for the instruction given in American dental colleges.

*France.*—Your committee is aware that separate dental schools exist in France, and its chairman has been in daily expectation of receiving their curriculum of study, but up to this time has been disappointed. Without this exact knowledge the members do not feel themselves justified in recommending any action, for we cannot proceed in so grave a matter upon mere assertions or impressions. As members of your committee will visit France in the immediate future, and will carefully investigate the course of study, we ask that we be given authority to incorporate our recommendations in this report after such investigation shall have been completed.

*Germany and Austria.*—The dental schools of these countries are departments of the universities, and only university students attend them. The instruction consists of lectures and clinical work given by from one to three dental professors, who lecture upon the different dental subjects. Instruction in chemistry and allied studies is afforded in the School of Philosophy or Science; in anatomy, physiology, etc., in the School of Medicine. No special instruction is given dental students except by the very few dental teachers. The clinical instruction is largely devoted to extraction and oral surgery. The practical work is usually quite limited. There is no obligatory course, but students enter for such lectures as they may choose, paying the fees of each professor separately. There are no obligatory hours for study or lectures.

The mechanical instruction consists of lectures on the principles of mechanics, the practical work being usually done in private laboratories. The examinations have very little resemblance to ours, each teacher asking three questions out of a list of forty approved by government. They are not usually as exhaustive or comprehensive or scrutinizing as ours. The licensing or approving power rests with the "Kultus Ministerium," or department of religion and education. The great majority of dentists in practice are *Zahntechniker*s, mechanical dentists, upon whose work no restrictions are placed, as they are not recognized by the government.

Your committee recommends that students speaking the English language who have taken the full dental course in German or Austrian universities, be eligible for reception in the junior classes of American dental colleges, provided it be shown that they have had at least two semesters of competent college instruction in practical laboratory and operative work. It further recommends that students speaking the English language who have had at least four semesters of such instruction in operative and prosthetic practical courses, and who shall have finished the dental course in the University of Berlin, or in any German or Austrian dental school whose course of instruction offers a full equivalent, be eligible for admission to the senior classes of accepted American dental colleges.

*Italy.*—In Italy the practice of dentistry was long without special restriction. Then an attendance upon lectures in a medical school was required, and a dental diploma was issued. In 1892 a law was passed which required dentists to obtain a medical diploma. This was not enforced until 1898, when a movement against foreign practitioners was inaugurated. They appealed to the courts and carried the matter to the supreme court, which decided that those in practice previous to 1888 had rights which could not be abrogated. At present the law of 1892 is in force, and this requires a medical diploma for the practice of dentistry and phlebotomy.

There are, we believe, no schools in Italy which have courses that can be accepted as equivalent to those of our American dental schools. The instruction given in the medical schools your committee believes to be too exclusively general in its character to form an acceptable course in dentistry for American students.

*Mexico*—There is a medical school in the City of Mexico which purports to give dental instruction. Your committee cannot learn that it is of such a character as will enable it to be accepted as the equivalent for a course in an American college.

*Japan.*—There is one dental school in Japan—that of Dr. Takayama, in Tokio. It confers no degree, but gives a certificate which entitles the holder to government examination, the same as if he had studied with some practicing dentist. As the instruction is personal and the school quite irresponsible, your committee believes that no consideration can be given to it.

*Holland and Belgium.*—In these countries the title of dentist is obtained by passing a practical examination in the theory and practice of dentistry. There are no separate dental schools, and we are not sufficiently informed of the comprehensiveness of the syllabi of the universities to offer any recommendations concerning them.

*Great Britain*—There can be no questioning the fact that England has some excellent dental schools. The only embarrassing circumstance in the determination of their status relative to ours lies in the great difference between the educational systems of the two countries. Undoubtedly they place greater stress upon preliminary educational requirements than do we, but your committee is of the opinion that our practical instruction is superior. Originally, we believe, there was little instruction given in prosthetic work during the term of attendance upon hospital lectures. Students were supposed to come to the college for didactic instruction, the practical part having been previously communicated by a preceptor. It should be comprehended that English dentists frequently employ a mechanic, who is not required to possess any special educational qualifications, the registered dentist mainly confining his attention to the operations of the surgery or operating room.

In this country we believe the practical work of the laboratory should form a part of the college course, and we do not graduate a student until he shall have satisfactorily completed the whole curriculum within the college walls. We are under the impression that the English system is undergoing a change in this respect, and that practical laboratory work will soon form

a part of the obligatory college course. We recommend that all students who shall have finished the complete course in any recognized English, Irish, or Scotch dental school or hospital shall be eligible for reception as senior students in American dental colleges upon proof of their having taken as a part of such course two years of instruction in a properly equipped dental laboratory and dental infirmary connected or affiliated with such dental school or hospital, and which requires the successful completion of the work deemed essential by recognized American schools, as formulated in the minimum requirements for foreign dental schools accompanying this report. We further recommend that for the present no consideration be given to partial courses in any of the dental schools of Great Britain.

*Sweden.*—Very complete reports have been furnished by Dr. Forberg. The country has one dental school, which is the dental department of the "Carolina Medico Chirurgical Institute of Stockholm." Instruction is given by five professors of the medical department, and there are three dental professors, occupying respectively the chairs of dental surgery, operative dentistry and dental prosthetics and orthodontia. From the assurances given by Dr. Forberg, your committee believes that its graduates should be permitted to enter the second-year class of recognized American dental colleges provided they shall have complied with our requirements concerning mechanical laboratory work. Your committee has not sufficient knowledge concerning this school to warrant further recommendations at present.

*Canada.*—In the Dominion of Canada there is but one school, which demands consideration, and that is a member of this body. Yet the educational systems of the two countries, especially in professional matters, are so different as to engender continual embarrassments, Canada being a foreign country, your committee has felt itself bound in duty to place it in the list of those countries whose relations with us must be taken into consideration. The dental educational system of Ontario approaches more nearly that of England than that of America. It has an analogous system of indentures which the dental student must sign, and private preceptorship forms a portion of its obligatory instruction.

This is directly at variance with our system, which accepts no tutorship by irresponsible parties. The dental law of Ontario forbids the entrance upon practice of any one who has not taken his final course of instruction in the Royal College of Dental Surgeons of Ontario. We believe that this principle is the correct one, and that the same rule should be made applicable in the United States, and that here, as there, no foreign qualification should be sufficient for registration in the various states of America. But the membership of this foreign school in our association presents an embarrassment which for the present seems insuperable, and your committee therefore has no recommendation to make, but leaves the matter for future consideration in the hope that some code of international agreement may be devised which will give to the graduates of America's recognized colleges who desire to practice in Canada the same privileges extended to the alumni of the excellent Ontario dental college.

**REPORT CONCERNING THE MINIMUM REQUIREMENTS TO BE DEMANDED BY THE NATIONAL ASSOCIATION OF DENTAL FACULTIES FOR THE RECOGNITION OF FOREIGN DENTAL SCHOOLS WHOSE STUDENTS DESIRE ADVANCED STANDING IN THE COLLEGES BELONGING TO THE ASSOCIATION.**

1. The college must require of matriculants a preliminary education which is the full equivalent of that demanded by the schools of this association.
2. The college must demand of students full attendance upon at least three full annual courses (not semesters) of lectures of not less than seven calendar months each, in separate years, covering all the studies proper to a full dental curriculum.
3. The college must possess a bacteriological laboratory, with sufficient of equipment for instruction in a competent course in bacteriology, which must form a part of its curriculum of study.
4. The same

must be required in chemistry, histology and pathology. 5. There must be a technic laboratory in which shall be taught the proper manipulations for the insertion of all kinds of fillings for teeth, the preparation and filling of the roots of teeth, the tempering and shaping of instruments, the drawing of wire and tubing for cases in orthodontia, and the cutting of bolts and nuts. 6. There must be prosthetic laboratories sufficiently equipped for teaching all kinds of prosthetic work, and the construction of all the approved prosthetic appliances. 7. There must be a sufficiently equipped laboratory for instruction in making crowns and bridges, and the construction of appliances used in orthodontia. 8. There must be a properly equipped infirmary or surgery for the reception of patients, upon whom each and every student shall be required individually to perform all and enough of the operations necessary in dental practice thoroughly to qualify him for the successful pursuance of his profession. 9. Complete records of the work done by each student, of his attainments at sufficient and full examination in each subject of the curriculum of study, of his attendance and deportment during the course, must be permanently kept. 10. No credit must be allowed for any work not done under the immediate supervision of instructors connected with or especially approved by the college, and who are in direct affiliation with the faculty.

The following is a list of the countries for which advisory boards have been designated, and the appointments and nominations so far as made:

COUNTRY.	NAME.	COLLEGE.	POST OFFICE ADDRESS.
Great Britain.	Wm. Mitchell, D.D.S.	Univ. of Michigan.	80 Upper Brook st., London, Eng.
" "	W. E. Royce, D.D.S.	Phil. Dental College.	2 Lonsdale Gardens, Tunbridge Wells, Eng.
" "	B. J. Bonnell.	.....	94 Cornwall Gardens, So. Kensington, London.
Holland and Belgium.	J. E. Grevers, D.D.S.	.....	18 Oude Turfmarkt, Amsterdam, Holland.
" "	Ed. Rosenthal, D.D.S.	Harvard Univ.	19 Boul. du Regent, Brussels, Belgium.
" "	C. VanderHoeven D.D.S.	.....	Der Haag.
Denmark, Swe & Nor'y	Elof Forberg, D.D.S.	Phil. Dental College.	Sturegatan 24, Stockholm, Sweden.
" "	S. S. Anderson, D.D.S.	Univ. Pennsylvania.	Christiania, Norway.
" "	L. P. Forslund - Kjaer, D.D.S.	Phil. Dental College.	Copenhagen, Denmark.
Russia.	H. V. Wollison, D.D.S.	N. Y. Coll. Dent.	10 Quai de l'Amaranti, St. Petersburg, Russia.
"	Theo. Weber, D.D.S.	N. C. Coll. Dent.	Helsingfors, Finland.
"	Geo. Th. Berger, D.D.S.	Phil. Dental Col. '77.	St. Petersburg, Russia.
Germany.	W. D. Miller, D.D.S.	Unv. Pennsylvania.	Victoriastrasse 30, Berlin, Germany.
"	C. F. W. Bodecker, DDS	N. Y. Coll. Dent.	55 Unter den Linden, Berlin, Germany.
"	Friedrich Hesse, D.D.S.	N. Y. Coll. Dent.	Goethe Str. 6, Leipzig, Germany.
Austria and Hungary.	Dr. Szigmondi.	.....	.....
" "	Dr. Waeisser.	.....	.....
" "	Dr. Arkovy.	.....	.....
Italy and Greece.	Albert T. Webb, D.D.S.	Univ. Pennsylvania.	87 Via Nazionale, Rome, Italy.
" "	Tullio Avanzl.	.....	.....
" "	A. V. Elliott, D.D.S.	Univ. of Mich. '87.	10 Via Tornabuoni, Florence, Italy.
France.	J. H. Spaulding, D.D.S.	Univ. Minnesota.	39 Boul. Malesherbes, Paris, France.

COUNTRY.	NAME.	COLLEGE.	POST OFFICE ADDRESS.
France.	I. B. Davenport, M. D.	Col. P. & S., New York.	80 Ave. de l'Opera, Paris, France.
"	G. A. Russell, D.D.S.	N. Y. Coll. Dent.	74 B'd Haussmann, Paris, France.
Spain and Portugal.	R.H.Portuondo, D.D.S.	Univ. Pennsylvania.	Paseo de Recoletos 3, Madrid, Spain.
"	Florest. Aguilar, D.D.S.	Phil. Dental Coll.	Serrano 5, Madrid, Spain.
"	T. J. Thomas, D.D.S.	.....	Bilbao, Spain.
Switzerland & Turkey.	L. C. Bryan, D.D.S.	Boston Dental Coll.	1 Steinenberg, Basel, Switzerland.
"	Theo. Frick, D.D.S.	Univ. Pennsylvania.	14 Tonhallenstrasse, Zurich, Switzerland.
"	Paul J. Guye, D.D.S.	Penn. Dent. Coll.	12 Rue de Candolle, Geneva, Switzerland.
Japan, China & India.	Louis Ottogy, D.D.S.	Western Dent. Coll.	87 Main street, Yokohama, Japan.
"	J. Ward Hall, D.D.S.	.....	Shanghai, China.
Australia & N. Zealand	Alfred Burne, D.D.S.	Phil. Dent. Coll.	1 Lyons Terrace, Liverpool street, Sydney.
"	A. P. Merrill, D.D.S.	Phil. Dent. Coll.	52 Collins st., Melbourne.
"	Herbert Cox, D.D.S.	Univ. of Mich.	216 Queen st., Auckland, New Zealand.
Cuba & W. Ind. Islands	R. E. Buchanan, D.D.S.	.....	47 San Francisco st., San Juan, Porto Rico.
Peru, Bolivia & Chili.	S. R. Salazar, D.D.S.	Chicago. Col. D. Surg.	Lima, Peru.

W. C. BARRETT, Chairman, Buffalo.

S. H. GUILFORD, Philadelphia.

J. D. PATTERSON, Kansas City.

T. W. BROPHY, Chicago.

H. W. MORGAN, Nashville.

} *Foreign Relations Committee.*

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## News Summary.

B. B. DAVIS, a prominent dentist of Athens, Ga., died July 20, 1900.

JAS. FERGUSON, 61 years of age, a dentist at Erie, Pa., died Aug. 1, 1900.

IRA E. PIKE, a dentist at Isle La Motte, Vt., 50 years old, died July 28, 1900.

H. F. BENNETT, a dentist at Louisville, Ky., 50 years of age, died July 31, 1900.

DAVID RICHEY, a former dentist of Milwaukee, died Aug. 3, 1900, at the age of 62 years.

A. P. WILLIAMS, 76 years old, and for many years a dentist at Boulder, Col., died Aug. 15, 1900.

B. J. PERRY, 48 years of age, and for twenty years a dentist in New York city, died July 29, 1900.

L. M. FINIGAN, a dentist 53 years of age, died of Bright's disease at San Jose, Cal., July 25, 1900.

S. P. WAUGAMAN, 45 years old, a dentist at McKeesport, Pa., died July 20, 1900, from cancer of the stomach.

C. L. TUCKER, a dentist at Sweetwater, Tenn., killed a man recently, but it is believed that his action was justifiable.

J. N. JONES, a dentist at Sanford, Fla., 48 years of age, formerly of Jacksonville, died Aug. 13, 1900. He was a native of Georgia.

WOMAN DENTIST IN MANILA.—Dr. Annie M. Sawyer of New York has hung out her shingle in Manila, and is finding plenty to do.

HIGH GRADE DENTISTRY.—According to the *Philadelphia Ledger*, a dentist of Elizabethtown, Pa., stands seven feet three inches in his stocking feet.

\$20,000 ASKED FOR A BROKEN JAW.—A woman in Fresno, Cal., has sued a dentist for \$20,000, claiming that he broke her jaw while extracting a tooth.

HARRY E. RAE, a dentist at Hammond, Ind., tried to commit suicide in the Chicago police station, Aug. 20, 1900, but it is believed that he will recover.

T. C. GLEDHILL, who was born in England, but who lived the greater part of his life in Philadelphia and practiced at Kensington for twelve years, died July 28, 1900.

D. E. PETERSON, who has for some time been practicing dentistry at Tien Tsin, China, has been heard from, and his relatives in New York State feel much relieved.

COCAIN PROVED FATAL.—A woman at Warren, Ind., is reported to be dying of blood-poisoning resulting from the administration of cocaine by a dentist to allay pain.

LOUISIANA DENTAL EXAMINERS.—The following were appointed on the state board Aug. 13: J. E. Woodward, R. L. Zelenka, J. S. Coreret, C. B. Johnson, G. A. Colomb.

SAMUEL H. GISH, 81 years of age, and the oldest practicing dentist in Janesville, Wis., died Aug. 2, 1900. He was a direct descendant of the old Guise family of Europe.

H. J. MAXWELL, a young dentist of Napoleon, Ohio, mysteriously disappeared June 11, and has not as yet been heard from. It is thought that he became demented and wandered away.

SEATTLE DENTAL CLUB was organized recently at Seattle, Wash., and the following officers were elected: Pres., C. A. Holmes; V. P., E. D. Andruss; Sec., A. D. Andrews; Treas., E. B. Palmer.

TO UTILIZE WAVE ENERGY.—Dr. J. K. Bryson, a dentist of Pittsburg, has invented a machine by which he hopes to utilize the wave power of the ocean. Successful trials have already been made.

E. E. PAXSON, a dentist at South Bend, Ind., was beaten and robbed by a man who was repairing his dental chair recently, and it is thought his assailant was a professional hold-up man who adopted chair repairing to gain opportunities for robbery.

TO COOL WATER when ice cannot be obtained, wrap the pitcher in cheese cloth previously impregnated with ammonium nitrate and dried. Moisten slightly at time of use, dry, and use again.—*Med. Rec.*

"MIZPAH" is the name of an amalgam put out in Europe. The quality of most alloys is such that a dentist might well say to his patient, "God be with you till we meet again," after inserting an amalgam filling.

PUBLIC TOOTH-PULLING EXPENSIVE.—A peddler who was pulling teeth in the streets of Norwich, Conn., as an advertisement for goods which he was selling, was fined \$60 dollars for illegal practice of dentistry on Aug. 15, 1900.

F. C. ROOD, a dentist of Kalamazoo, Mich., was sunstruck July 31, 1900. It evidently affected his mind, as without warning he took a train for Omaha, Neb. His strange actions induced his relatives there to send him back home, but as yet he has not been heard from.

"CADAVER TRUST" UNDER SUSPICION.—This organization, which has been in the habit of securing bodies from the insane asylum and poorhouse at Dunning for the Chicago dental and medical colleges, is now suspected of irregular methods, and the authorities are about to investigate it.

BOTTLE TALES.—She: In this story it refers to empty bottles as "dead men." That's absurd.

He: What's the absurdity?

She: Well, dead men tell no tales; empty bottles do.—*Moonshine.*

C. C. CORBETT of Edwardsville, Ill., received his commission as a member of the Illinois State Board of Dental Examiners on Aug. 4, 1900, to succeed A. C. Barr. Dr. Corbett is a capable and conscientious man for the place, and we congratulate the practitioners of this state upon his appointment.

STOLE HIS FALSE TEETH.—A woman in Massachusetts ran away from her husband and took with her his false teeth. Perhaps she was actuated by revenge, or possibly she still loved him and wished to keep an intimate souvenir, or it may be that she did not wish him to chew the matter over.

ARABIAN PROVERB.—He that knows not, and knows not that he knows not, is a fool—shun him. He that knows not, and knows that he knows not, is simple—teach him. He that knows, and knows not that he knows, is asleep—wake him. He that knows, and knows that he knows, is wise—follow him.

JULES J. SARRAZIN, dean of the New Orleans College of Dentistry, was shot and probably fatally wounded by Armand Mary, a prominent dentist of New Orleans, on Aug. 25, 1900. The men were leaders of opposing factions during the pendency of the last dental bill and became enemies. They afterwards fought a duel with the above result.

TOOTH DESTROYS LUNG.—A woman in Ohio has sued her dentist for \$10,000. She claims that when he was extracting some teeth one of them went down her throat and into the right lung where it remained for five months. It was expelled during a coughing fit, but in the meantime the plaintiff claims that abscesses formed and almost destroyed the lung.



**TURKEYS' AGE.**—"How do you tell the age of a turkey?"

"By the teeth."

"A turkey hasn't teeth."

"No; but I have."

**MORE DENTAL DEADBEATS.**—In our June issue we stated that farmers in Iowa and Nebraska had been victimized by traveling dentists. The same thing has now been practiced throughout Indiana, and the same method has been adopted. The swindlers extracted the teeth and pulled the legs of their victims. They collected half the price of a new set, but as yet the sets have not been delivered and are not likely to be.

**REWARD OF THE PHILANTHROPIC PHYSICIAN.**—(*Boston Med. and Surg. Jour.*) A physician in this vicinity was recently called to a family which he found in such destitute circumstances that he gave in addition to his prescription, a five-dollar bill. Happening in the next day, he discovered that his gift had been thus spent: Three dollars to the priest, and two dollars to get another doctor.

**ACUTE TRIFACIAL NEURALGIA.**—In it almost all antineuralgic drugs may succeed, though the quickest results are obtained with repeated 15 grain doses of sodium salicylate, or  $7\frac{1}{2}$  grain doses of quinin. In chronic trifacial neuralgia better results are obtained by certain combinations of drugs, such as phenacetin with quinin, cannabis indica with salicylic acid, chloral hydrate with morphin, and the bromids with morphin or belladonna.—*Therap. Gazette.*

**RELIEF OF THIRST.**—Dr. A. Philip writes to the *Lancet* referring to a mode of quenching thirst by keeping a small round pebble in the mouth. Thirst disappears and perspiration is diminished. Dr. Philip states that he has gone as long as eight hours and a half in a boiling sun with nothing but dry biscuits and cheese for a lunch and at the end of that time was not particularly thirsty. This plan is by no means new, though it is probably not so widely known as it deserves to be.

**HABIT.**—Somebody has been trying his hand on the word "habit," and he works it out thus: "Habit" is hard to overcome. If you take off the first letter it does not change "a bit." If you take off another you still have a "bit" left. If you take off still another the whole of "it" remains. You take off still another and it is—no "it" is totally used up. All of which goes to show that if you wish to get rid of habit, you must throw it off altogether and at once; it cannot be done a part at a time.—*Stylus.*

**REFLEX AMAUROSIS.**—The condition reported by Sloggett, which is unique in his experience and which he finds mentioned only by Swanzy, and by him discredited, is one of amaurosis due to reflex from the teeth. His patient had had no toothache or pain in the teeth themselves during the manifestation of eye symptoms which were completely relieved by the extraction of the decayed roots. The ophthalmoscopic examination throughout had been negative as regards any pathologic conditions, while the light perception was entirely lost during the attack.—*Jour. A. M. A.*

**RETORT COURTEOUS.**—"Doctor," said the inquisitive lawyer, "why did you call in another physician when you had influenza? Didn't you have faith in your own medicine?"

"Why," the doctor asked, "did you get another lawyer to defend you when your wife sued for divorce? Didn't you have faith in your own ability to insult witnesses?"—*Washington Star*.

**STYPTIC FOR BLEEDING GUMS.**—

R	Tr. krameriaë .....	3 i.
	Chloroformi .....	m viij.
	Ac. tannic.	
	Menthol .....	aa gr. iv.
	Aq. destill. ....	$\frac{3}{4}$ ij.

—[*VIAU, Med. Rec.*]

**SWEATING HANDS.**—The *Jour. de Med. de Paris* gives the following formula:

R	Borax	} of each.....	4 drams;
	Salicylic acid		
	Boric acid .....		1 dram;
	Glycerin,	} of each.....	2 ounces.
	Dilute alcohol,		

Apply with friction three or four times a day.

**TENDERNESS AND PHILOSOPHY.**—A typographical tourist sends us the following, which he discovered somewhere near Omaha, as an example of the harmonious blending of pathetic tenderness and comforting philosophy:

"We mourn the loss of our Jamie dear,  
Who went to heaven with diarrhea."

Under which some sacrilegious tramp had inscribed:

"'Twere better thus for his salvation,  
Than to have gone with constipation,

—*Inland Printer.*

**INGROWING NAILS.**—I wish to call attention to a method of treatment for this painful affection which I have used for many years, and I do not remember a failure to promptly effect a cure: 1. Remove all pressure from the nail by cutting away piece of the shoe. 2. Disinfect with hydrogen dioxide until no more "foam" appears. 3. Apply a drop of strong solution of cocaine in the base of the ulcer. 4. Apply a drop of Monsell's solution to the ulcer, then cover loosely with gauze. Repeat this process every second day until the edge of the nail is released by the retraction of the hypertrophied tissue. The patient suffers no pain from the application and all pain disappears the second day. The cure is effected in a week or two, without inconvenience or interference with business.—*Dr. Kinsman, Columbus Med. Jour.*

**GEOPHAGY.**—The habit of eating earth, or geophagy, is more widespread than is generally supposed. In some parts of Germany a fine clay is spread upon bread, under the name of stone-butter. In Upper Italy and in Sardinia earth is sold in the market. In the extreme northern part of Sweden and in

the peninsula Kola an earth composed of infusoria and called mountain flour is baked in bread. In Persia earth is used in the manufacture of certain sweetmeats. In tropical regions the use of earth as an article of food is well known; but it is also employed as a medicine in Nubia, and among different tribes its use has a religious meaning as well. Many explanations are offered for such a widespread custom. It is not impossible that these various earths have more or less flavor, and that they supplant to a certain degree the use of salt.—*Med. News.*

**FORMALIN FOR WARTS.**—M. F. Engman (*Medical Review*, May) says that it is first necessary to remove the thickened horny layer with a salicylic acid plaster, twenty per cent, or salicylic acid in flexible collodion, one dram to the ounce, applied for several days, when the patient returns. The part is bathed in very hot water, which macerates and removes the homogenized horny layer. It is then dried, wiped with benzine to remove any fat or plaster, and painted with pure formalin. The painting should be done thoroughly and the swab allowed to remain on the place for a few moments, which increases the penetration of the gas in solution. This agent is deeply penetrating and seems to seek out and destroy the offending factor. Very slight burning is experienced, but is much less painful than the usual methods. One or two paintings are sufficient to effect a cure; the wart whitens and drops off in a few days, but the horny layer must first be well softened and removed by the salicylic acid.

**FACIAL EXPRESSION OF FATIGUE AND VIOLENT EFFORT.**—Dr. R. Tait McKenzie (*Science*, March 16,) says that in fatigue, as observed in a foot race of a mile, we saw the following changes: The lips were slightly parted, the teeth open, eyes semiclosed, brows contracted, as in mental concentration, the upper half of the orbicularis acting with the corrugator supercillii. As the race proceeded, the lips were drawn down by the depressors and up by the levator proprius and zygomaticus minor. The corrugator acted strongly. As the respiratory need increased the nostrils were dilated by the levator labii superioris alæque nasi, accentuating the expression of grief. This expression then passed away and the face became apathetic, the mouth gaped and the jaw dropped, the upper eyelid tended to droop. The lowering of the upper lid was counteracted either by throwing the head back or by bringing into action the occipito-frontalis. This gave rise to an expression of astonishment in the upper part of the face. In extreme exhaustion or collapse the jaw dropped, the upper lid came down and the face became expressionless. When a violent effort was made the expression came more nearly to correspond to that of rage.

**HE GOT THE PLACE.**—Dr. McTavish of Edinburgh was something of a ventriloquist, and it befell that he wanted a lad to assist in surgery who must necessarily be of strong nerves. He received several applications, and when telling a lad what the duties were, in order to test his nerves, he would say, while pointing to a grinning skeleton standing upright in a corner: "Part of your work will be to feed the skeleton there, and while you are here you may as well have a try to do so." A few lads would consent to a trial, and received

a basin of hot gruel and a spoon. While they were pouring the hot mass into the skull the doctor would throw his voice so as to make it appear to proceed from the jaws of the bony customer and gurgled out: "Gr-r-r-h-h ! That's hot." This was too much, and without exception the lads dropped the basin and bolted. The doctor began to despair of ever getting a suitable helpmate, but a small boy came and was given a basin and spoon. After the first spoonful the skeleton appeared to say: "Gr-r-r-uh-r-hr ! That's hot." Shoveling in the scalding gruel as fast as ever, the boy rapped the skull and impatiently retorted: "Well, jist blow on't, ye auld bony !" The doctor sat down on his chair and fairly roared, but when the laugh was over he engaged the lad on the spot.—*Current Literature*.

**ETHYLIC BROMID.**—Sondern recommends this agent as one of the safest and best for short operations. It must be very volatile, when poured on the hand must evaporate rapidly, must be entirely colorless and have a sweet odor. The entire quantity for a child is 5 to 10, and for an adult 10 to 20 grams. This is poured on an anesthesia mask, allowing only a small quantity of air. Anesthesia is obtained in from twenty to forty seconds, when the mask is removed and not reapplied. The administration must be arrested at the proper time, which is shown by the relaxation of the muscles of the neck and arms. If this is unobserved and the anesthesia is continued the muscles contract and there is danger of asphyxia, especially when operating on the larynx. If this moment has been allowed to pass it is better to let the patient come out, and reanesthetize, preferably at another time. The anesthesia lasts about two minutes. For a person from 8 to 16 years of age ethylic bromid has no equal, as the patient, though not completely unconscious, feels no pain. The fatal cases recorded may be attributed to either the use of ethylen instead of ethlic bromid, the use of an old solution, the use of the drug in repeated small quantities, the continuance of administration for longer than one minute, or repeated administration. The mask should never be applied more than twice at one sitting, as a case has been recorded where death occurred at a third application.—*Jour. A. M. A.*

**MEDICAL EXPERTS IN CASE AGAINST DENTIST.**—A dentist having been sued for damages for alleged malpractice in using unclean instruments, the Supreme Court of Kansas sees no error in questions intended to secure the judgment of persons skilled in medicine and its effects as to the likelihood of the plaintiff's affliction having been caused by the defendant's failure to sterilize his dental instruments, although from the hypothetical questions propounded to them they could merely give their best judgment as to the cause of the plaintiff's disability. The contention of counsel for the defendant that the physicians should have been required to state with certainty the cause of the plaintiff's condition after a hypothetical case had been submitted to them, it holds, would be supposing an exactness in medical science to which its most learned followers have not yet attained. In other words, it holds that medical experts, in response to hypothetical questions, are not required to answer with certainty, but may give their opinions as to the probable result of a given treatment or operation. In propounding such ques-

tions it further says counsel may base the same on testimony which is weak and inconclusive, and on testimony of one or more witnesses, or on inferences properly deducible therefrom. It is not necessary that the exact words of witnesses be used in propounding the questions. But an objection that a hypothetical assumes facts not proved, ought to point out with particularity the facts which are claimed to be untruly stated. Judgment for \$2,000 for the plaintiff, *Roark vs. Greeno*, was affirmed.—*Jour. A. M. A.*

### THE DENTIST.

(Written by a little girl patient, from her standpoint.)

Lurks the Dentist in his lair,  
With a wild and woolly glare;  
Comes along a little maid,  
Timid, shrinking, sore afraid.

Climbs into the fearful chair  
(Doctor has her helpless there),  
Peers he down her little throat;  
Chuckles somewhere 'neath his coat.

Fits her with a rubber mask,  
Smiling, smirking o'er his task;  
Drills and bores with mighty vim,  
Chuckling all the while within.

Pounds and thumps for three long hours,  
Maiden weeps a few small showers;  
At last she sheds the hateful mask,  
Faintly creeps from 'neath his grasp.

Limpely, whitely crawls away;  
Pa a handsome bill must pay.  
Lurks the Dentist in his den,  
For his suffering fellowmen.—*Items.*

POISONING BY POTATOES.—Pfuhl (*Deut. med. Woch.*, Nov. 16, 1899) report the case of fifty-six German soldiers who were stricken together with symptoms of acute gastro enteritis. The sickness began with chills, followed by fever, headache, colic, vomiting and diarrhea. A number of the men collapsed, and all were much prostrated. More or less jaundice developed. None of the cases ended fatally, nor were there any relapses or sequelæ. Investigation showed that the soldiers had all eaten of sprouting potatoes, and it was supposed that they had been poisoned with the alkaloid solanin, although the troops had eaten sprouting potatoes before but without bad results. The potatoes were always carefully peeled and the sprouts largely cut out. They were then cut up and allowed to stand all night in water. In the morning they were rinsed off in running water and cooked for twenty-five minutes. Several similar instances of potato (or solanin) poisoning have been known in Germany, and it has long been asserted that potato eyes or sprouts contain solanin, an irritant and narcotic poison. The cases reported

on the continent show that solanin is present in the potato to a slight but varying extent, and that in all probability its formation is dependent in some way upon the process of germination. While ordinarily the amount is too small to be poisonous, it may under unknown conditions be markedly increased. Pfuhl thinks mild cases of indigestion, diarrhea, etc., might in some cases be accounted for by the previous ingestion of potatoes having an increased proportion of solanin.—*N. Y. Med. Jour.*

**FACIAL NEURALGIA.**—W. C. Belt, in the *Medical Sentinel*, gives a new and simple method for the relief of this painful condition. He says that the two nerves endowed with the greatest number of tactile nerve-endings are the fifth, supplying sensation to the antero-lateral part of the head and face, and the median, supplying the fingers. The motor areas of these nerves in the cortex are not only adjacent to each other, but actually overlap. Acting in accordance with this idea, and with the fact that the fibers of the median cross in the cord, he has succeeded in relieving a number of cases of facial neuralgia. He directs the patient to place the hand, opposite to the side on which the neuralgia exists, in a basin of water as hot as can be borne. Relief has invariably been given in less than five minutes. The history of several cases is appended. He uses hot water, as it is the simplest method of imparting a uniform kind of motion (heat) to the greatest number of tactile nerve-endings. He thinks that the cerebral cortex receives an impression which will dominate the impression produced by the pain.

**CANNOT TESTIFY TO OWN CLAIM FOR SERVICES.**—The constitution of the State of Arkansas provides that "in actions by or against executors, administrators or guardians, in which judgment may be rendered for or against them, neither party shall be allowed to testify against the other as to any transactions with or statements of the testator, intestate or ward, unless called to testify thereto by the opposite party." This was invoked in the case of *Cash vs. Kirkham*. Here a physician had presented two accounts against the estate of a deceased person. They were principally for services rendered the deceased and his family. The administrator disallowed them. Then there was a suit over them. In that the plaintiff was allowed to testify, over the defendant administrator's objection, that he was the attending physician during the last illness of the deceased; that he made forty visits, at \$2 a visit; that the cost of an operation on the wife of the deceased was \$25; and that the total amount due on this account was \$120. The defendant objected to this testimony of the plaintiff, for incompetency—the same being as to transactions with the defendant's intestate. The overruling of this objection and allowing the evidence to go in, the Supreme Court of Arkansas now holds was reversible error. It says that the testimony of the plaintiff tended to prove an implied contract with the deceased, the legal effect of which, as a whole, if true, was an implied promise of the deceased to pay the plaintiff the sum of \$105 for services rendered. This was a transaction with the deceased—as much as it would have been had the deceased expressly promised to pay \$105. The only difference between the two transactions was that in one case the promise was implied, and in the other expressed. Hence, the court holds, the testimony should have been excluded on the ground that the plaintiff was incompetent to testify as to such transaction.—*Jour. A. M. A.*

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# The Dental Digest.

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## Original Contributions.

### NECROSIS, INVOLVING THE ALVEOLAR PROCESS, SUPERIOR MAXILLARY BONE, ANTRUM ON BOTH SIDES, HARD PALATE AND NASAL BONES, RESULTING FROM ALVEOLAR ABSCESS.

BY W. H. DE FORD, D.D.S., CEDAR RAPIDS, IOWA. READ BEFORE THE IOWA STATE DENTAL SOCIETY, AT DUBUQUE, MAY 1-3, 1900.

This case of necrosis is one of the most extensive, and at the same time instructive, ever recorded arising from an alveolar abscess. It serves a twofold purpose, in that it furnishes an opportunity, first, to condemn a method of treatment almost universally recommended by physicians in acute alveolar abscess; and, second, an opportunity to censure the very common practice, both among dentists and physicians, of operating for necrotic conditions of bone before desquamation has taken place. As the result of placing hot applications or poultices on the face in inflammatory conditions, pus is drawn away from the circumscribed sac in which it would remain, burrows, destroying all tissues with which it comes in contact, widely spreading the infection; and frequently breaks upon the face, leaving a scar which is seldom obliterated. Hot applications should never be applied to the face in cases of alveolar abscess. The very bad practice of removing necrosed bone before it becomes detached unaided results in disfigurement of the parts, and frequently terminates in death of the patient from septicemia. The operation for necrosis should never be performed prior to desquamation.

The history of my case is as follows:

Mrs. M—, about thirty years of age, was brought to my office Sept. 30, 1899, by her dentist, Dr. C. B. Whelpley, for an opinion relative to a very serious pathological condition. On Friday, Aug. 2, fifty-nine days previous, her dentist had filled a cavity of decay in the upper right first bicuspid with amalgam, the pulp having



been removed and the root-canals filled at a prior sitting. In the afternoon of same day the tooth became painful. Saturday it was more painful. Sunday the surrounding tissues commenced to swell. The cavity and root fillings were removed, access gained to the apical space, iodine and creosote applied to the gum. The desired relief was not obtained, and Tuesday, at the earnest solicitation of the patient (who had all arrangements made and was anxious to take a train that afternoon for Western Iowa), the tooth was extracted. The patient returned to her home, but instead of taking the train took to her bed. In order to obtain much needed sleep a physician was called to prescribe with that end in view. He not only ordered certain sleep-producing powders to be taken internally, but directed that hot applications be applied to the swollen face externally. Towels saturated with hot water were used for this purpose. It is not an easy matter to keep a hot towel in position on one side of the face, as you readily understand, so naturally the towels were evenly divided on either side of the nose, extending down over the upper lip, and one day a flaxseed poultice was ordered and placed in position as described. What was the result? The right cheek being saturated with that poisonous infiltration which precedes suppuration, the hot applications drew it down toward the lip, around under the nose, up into the tissues of the left cheek, resulting in the closing of both eyes, so great was the swelling. For three weeks the patient remained in a semi-unconscious condition, unrecognizable by friends, the offensive discharge so penetrating the room it was impossible to remain in her presence longer than a few minutes at a time. As soon as pus formed, at each visit of the physician, twice per day, the lance was inserted in two or three places and peroxid of hydrogen, full strength, injected. Even in her semi-unconscious condition, each injection of peroxid seemed as though dynamite was being exploded in her head, so terrific was the pain. You will remember that when peroxid comes in contact with pus oxygen is liberated and it expands twelve times its volume. The mucous membrane covering the hard palate was distended with pus to such an extent there was scarcely room enough in the mouth for the tongue. From this time on pus flowed freely. Upon arousing patient from a nap one or more puddles of pus as large as a silver dollar would be found on the nightdress, pillow or sheets.

Four weeks longer she was confined to the house before being strong enough to take out-door exercise. Seven weeks had now elapsed since the tooth was extracted, when she decided to make the delayed visit to the western part of Iowa. Two or three days after arriving at the home of her sister, she noticed a piece of loose bone in the gum over the right lateral incisor. Becoming alarmed she consulted a dentist. Upon examination he pronounced it an exten-

sive case of necrosis, predicting she would lose all the teeth in the upper jaw from molar to molar. Another dental practitioner gave the same opinion, adding that she would not only lose her teeth and the bone that supported them, but also a portion of the superior maxillary bone, and so much tissue would be destroyed that an artificial substitute could not be worn.

You can well imagine the effect such information would have upon the patient, who as yet was not sufficiently strong to be up and around all day. The last dentist further said that the case was an unusual one, and advised her to go to an adjoining state, referring her to a practitioner well known in Iowa. The gentleman consulted agreed with his fellow-practitioners in Iowa, pronouncing the case a serious and extensive one involving much tissue. He preferred that a colleague should see the case, and while a messenger was dispatched to that intent, called in a physician who had an office adjoining his own, and he was of the opinion that teeth, process and portions of the superior maxillary bone must be removed. In the meantime the gentleman summoned arrived, a man of extended observation and good ability, one who had made a study of oral surgery for some ten years. In his opinion an operation was imperative, the sooner the better. The inflammation had already involved the superior maxillary and nasal bones, and he intimated that it was a case of life and death. The patient could not decide upon an operation away from home and friends. She did not feel that in her weakened condition she could survive an operation, nor on the other hand, was she certain she wished to live, so great would be the deformity. She partially agreed to an operation, however, returning first to Cedar Rapids that her husband and friends might help her to determine her course of action.

Her dentist, Dr. Whelpley, in whom she had implicit confidence, insisted that she should see me before making a final decision, and rely on my judgment in the matter.

This is the history of my case prior to the time I saw it, as ascertained from the dentist who referred the patient to me, the physician who had charge of the case after the extraction of the tooth, the husband, and the patient herself, an intelligent and refined little woman.

Early on Saturday, Sept. 30, 1899, I saw the patient for the first time. She was pale, emaciated, anemic. Having a short upper lip, the first thing noticeable was the color of the gum, it being a deep purple, almost black, except a rim about a sixteenth of an inch deep just above the neck of the teeth, which was a trifle paler. This condition was present as far back on either side as the second bicuspid, and as high as the gum extended to the point where the

mucous membrane is reflected back upon the inside of the lip and cheeks. There was neither sensation nor circulation in the gum. I pierced the gum to the process in several places with a sharp-pointed lancet, and there was neither hemorrhage nor pain. About on a line with the ends of the roots of the eight anterior teeth and a little higher were a dozen fistulous openings. A number of small pieces of loose necrotic bone were peeping out of the purple gum. The incisors were loose enough to have been removed with the fingers; the cuspids and bicuspid somewhat firmer. Upon inspecting the hard palate I noticed two pieces of loose necrosed bone at the posterior palatine spine and removed them. Pus was draining freely from the fistulous openings. The space between the molar process and the alæ of the nose was still swollen and tender upon pressure. The upper lip possessed the sensation of stiffness, very noticeable upon laughing. The nasal spine of the maxilla and the nasal process of the same bone were very sore on pressure. Everything considered, it was the most hopeless looking case of necrosis that ever came under my observation. In addition to the local pathological condition, the patient's constitution had been undermined; her vitality was at low ebb, her strength exhausted, and, in my opinion, she could not have survived an anesthetic. An operation, which was not indicated in my judgment, would, I believe, have resulted fatally.

The operation for necrosis is never justifiable until desquamation, unaided, has taken place, and that requires from two to fifteen months. Garretson says, "In the special treatment of the sequestrum, it is to be looked upon as a matter of importance that the dead piece be detached by nature alone. The period at which a sequestrum is ready to come away can be known only by repeated examinations, the proper treatment being to wait always till exfoliation is complete, be such time longer or shorter. Nothing is gained by expediting the removal through operative proceedings, as by breaking away the bone, using the chain saw, etc., while the risk to life, from danger of septicemia, is very considerable. *To wait patiently*, keeping the system equal to the demand on it, is the surgeon's highest duty; to do more is to do harm."

Encouragement was what was needed, not an operation. I told her, "You have been unduly alarmed; your case is not so serious as you have been led to believe. You may lose one or two teeth, but

I am confident I can save the bone and adjust an artificial substitute. If I am mistaken and an operation should be necessary, it can be done later, when you are stronger. If you wish me to take your case, in two months' time your cheeks will be red and your lips rosy, and you will be neither deformed nor disfigured." A great change came over her countenance; her face was radiant with hope, and she remarked, "That is the first encouragement I have received."

Before dismissing the patient, assisted by Dr. Whelpley, we supported the loose right central incisor, opened into the pulp-chamber from the lingual surface and removed the pulp. A surprise was in store for us. I supposed, of course, the pulp would be in a state of liquefaction and putrefaction, but neither condition was present. A barbed broach was passed into the root canal, rotated, removed, the pulp coming with it en masse, and with sufficient vitality to stand erect on the end of the broach, with no perceptible odor. A few drops of Wampole's solution were dropped in warm water and the canal carefully syringed. Quantities of pus, followed by the solution, flowed freely out of the fistulous openings. There was one continuous cavity extending from second bicuspid to second bicuspid. The left central was opened in like manner and the pulp found in the same condition. Disintegration and liquefaction had not taken place. Syringed as before, the solution finding exit through the fistulous openings. I was much surprised at the condition of these pulps, and at the time was unable to account for it. I wanted a little time to think, so dismissed the patient until Monday morning, seeing her Sunday at her home.

One of the most frequent causes of necrosis is the result of discontinuance of the supply of nutriment to the tissues. Burchard says, "If from any cause—surgical ligation of an artery, pressure upon it by effusions or new growths, degeneration or affections of the arterial walls, pressure of an embolus or thrombus—the flow of blood to a part is arrested, the nutritive supply ceases and the cells dependent upon that vessel perish. If the entire venous outlet of a part be obstructed, there is not that removal of waste products necessary to the life of cells; moreover, access of nutritive material is prevented and the parts die. Complete obstruction of the capillary supply to a part is followed necessarily by a cessation of nutrition in the part, consequently necrosis follows." Cohnheim says, "After interruption of the blood supply, brain tissue, renal

and intestinal epithelium die within two hours." Ziegler states that "skin, bone and connective tissue live over twelve hours."

The great quantity of pus obstructed the nutritive supply; circulation was cut off, nutrition impaired, arteries, veins and nerves approaching the teeth and gums were dead, and finally the bone itself succumbed. These fistulous openings had not arisen from the dead pulps in the teeth, but were simply outlets for the pus from the tissues above them. The pulps would in time have become putrescent, and then there would have been additional trouble.

Pepto-mangan, a preparation of iron, pepsin and manganese, was prescribed, one-half tablespoonful in sherry wine three times per day. This is the best blood-builder with which I am acquainted, and it acted like a charm. This was continued a month, then phospho-muriate of quinin substituted for two weeks with the Blaud pill, then the pepto-mangan again during October, November and December. During January I discontinued all tonics, but renewed the pepto-mangan in February, continuing until the present time. As a mouth-wash, a teaspoonful of Wampole's solution in a glass of tepid water, the mouth to be rinsed at frequent intervals. Freedom from all household duties was demanded, and in their stead out-door exercise in the air and sunshine, walking up and down the porch, raking leaves, and working about the lawn, and as patient grew stronger, longer walks and moderate exercise.

Monday she returned. I opened into the left lateral incisor, left first bicuspid and right cuspid; removed the pulps and found them in same condition as those of the two central incisors, possessing vitality and no odor. As the right lateral incisor and left cuspid contained good gold fillings, the root-canals having been filled some years previously, these teeth were not opened. The solution thrown into the central and lateral roots worked out of the fistulous openings above the eight anterior teeth. That thrown into the right cuspid and left first bicuspid passed into the antrum on their respective sides, making exit through the anterior or posterior nares, depending upon the amount of pressure used.

An hour each forenoon for three months was spent in thoroughly irrigating the parts, and it is hardly necessary to say that the heaviness, weight and tension being removed, the offensive odor being destroyed, the patient improved every minute from the very first treatment. I had gained her confidence and the battle was won.

Upon arising in the morning, by making pressure with the fingers upon the lip and cheeks, she could force large quantities of pus from these fistulous openings, and at nearly every sitting I would remove one or more small spiculæ of necrotic bone from the gums. About the third week, when syringing the left lateral, I noticed for the first time a drop of blood. This meant the circulation was being established; new blood vessels were being built up, and from that time on the gum-tissue commenced to change from a dark purple to a normal color.

About the sixth week the nature of discharge was different. No longer was it offensive in odor; it was more the character of a yellow exudate, and contained minute particles of bone, like very fine grains of sand; the necrotic tissue was in a state of liquefaction, some of it being absorbed, other parts coming away through fistulous openings, and the larger parts working out en masse through gums.

The first of December, the eighth week after I took the case, while playing a game of cards a tickling sensation in the left nares caused the patient to sneeze violently, and she blew into her handkerchief a piece of necrotic bone about a quarter of an inch in length and an eighth of an inch in width, which I took to be a portion of the wall or septum between the antrum and the nares.

At Christmas you would hardly recognize her as the pale, bloodless, anemic person that entered my office twelve weeks before. Her lips were red and cheeks rosy; her general health was never better, and she reported being able to do more work about the house than at any time in years.

Jan. 1, 1900, the fistulous openings commenced to disappear. No longer could I force water through the openings via the root-canals, and I placed a dressing in these canals of campho-phenique and sealed them in with cotton saturated with chloro-percha. Jan. 24 I adjusted the dam, removed the temporary filling and root-canal dressing from the left first bicuspid; there being no odor, filled the canals with chloro-percha and hydonaphthol powder, and the cavity with Ames' metalloid. Jan. 25 the right cuspid was completed in the same manner, the 27th the left lateral, and the 31st the left central. Four of the five teeth from which the pulps had been removed are now (Feb. 1) in a healthy condition, firm in their sockets, and no evidence upon inspection is present to indicate they were ever in an abnormal condition.

What about the fifth tooth? In the early part of December the right central elongated, became very loose, and looked as though it would drop from its position in the arch. A large section of the process immediately covering the root of this tooth broke away from its position and commenced to migrate. The lower part pierced the gum and rested on the labial surface of the tooth; the sequestrum moved from right to left, and in two weeks more the left margin had cleared the gum. A thin blade could be passed under its margin from the gum to a point a little higher than the apex of the root, at which point the gum covered the upper end. The side next the lateral was still covered with gum its full length. This was the largest single piece of bone at any time in sight. It continued to move gradually to the left, till there was a piece of bone exposed to view as wide as the central incisor itself. The little sharp point that pierced the gum resting on the tooth came away from the mass, and from that time the tooth commenced to tighten. About Feb. 1 the side next the lateral had also passed out from under the gum, and now you could insert a thin blade under this side also, the only attachment being high up above the apex of the root. No discharge could be discovered, and the parts were healthy looking except a line of redness next the edge of the bone. Every day from that time on I expected to see my patient walk in, having in her pocket-book the sequestrum. From the time it emerged completely from the gum it commenced to diminish in size, the thin edges were crumbling away and liquefying.

To have removed the sequestrum so soon as it pierced the gum would have exposed the root of the central from gum-margin to apex; the tooth would have been lost. This piece of process, though loose, helped to support the tooth and protect the delicate new tissue beneath while it was forming. April 18 the sequestrum dropped out unaided, and there was not even a depression in the gum to mark its former position. April 21 the root-canal was filled with chloro-percha, the crown cavity with metalloid, and the patient dismissed. The teeth are firm and comfortable, and not even discolored. The gum is in a normal condition; not a fistulous opening or sinus remains. Every atom of process covering the eight anterior teeth was probably destroyed. All blood vessels and nerves supplying these teeth and the gums died from discontinuance of nutriment to the tissues, the blood supply being cut off.

What would have been the result had an operation been performed in this case? Where would the operator have stopped? If an operation had been made, the surgeon must have removed all necrotic tissue. Imagine the result, horrible as it seems. First, the teeth must have been removed; then the alveolar process; that portion of the superior maxillary bone encompassing the antrum of Highmore; the nasal process and partition between the nares and antrum, and a portion of the hard palate, all the hard tissue from teeth to the thin bone supporting the eyeballs. It would have been impossible to have removed all of the infected territory, and after the operation the wound would have filled with serum, which, under the circumstances, would form the very best culture-medium for the microorganisms to enter and propagate in, and the patient would have been poisoned to death in short order.

In conclusion, let me repeat: First, never place hot applications on the face in alveolar abscess, and, second, the operation for necrosis should never be performed prior to desquamation.

### PROPHYLAXIS IN DENTISTRY.

BY D. D. SMITH, D.D.S., M.D., PHILADELPHIA. READ BEFORE THE ACADEMY OF STOMATOLOGY, PHILADELPHIA, JUNE 26, 1900.

It was the privilege of the author to first present the subject matter of this paper before the Washington City Dental Society Feb. 24, 1898. The talk then made was afterward elaborated and presented as a paper before the Northeastern Dental Society at Hartford, Conn., in October of the same year. This paper was published in the *International* January, 1899. The theories then timidly advanced having in experimental practice apparently congealed into concrete principles, it seems fitting and appropriate that the matter should be brought in a formal manner to the notice of this academy, for the significance attaching to the principles herein enunciated should command the most serious attention from the reflective and earnest minds of the profession.

Whilst it is not a written declaration of dentistry, there is nevertheless a distinct impression emanating from dental literature and dental teachings, to the effect that any advancement in dentistry must be either through improved mechanism, new materials or new methods of operating; in other words, there always has been and still is given to the *mechanics* of dentistry a decided preponder-



ance of energy and effort. It has been the good fortune of the author, while seeking an interpretation of certain phenomena which are always attendant upon the more common dental lesions, to be led out of the beaten paths of thought and effort and into investigations for the betterment of the teeth, in distinctively opposite ways and by distinctively opposing methods. The results of these investigations and experiments, like the methods employed in producing them, are wholly antipodal to the present thought of the profession; and hence are brought to the notice of the profession with a degree of hesitancy and with some trepidation.

It is my belief and conviction, that when the secrets of the etiology of caries of the teeth shall be clearly unfolded, the inevitable conclusion will be that to *tooth environment* rather than to structural composition, is due by far the larger percentage of dental troubles. Firmly convinced of the impregnable nature of this proposition, my efforts have centered upon means and methods for producing and maintaining the most perfect attainable isolation of the teeth from concomitant agencies of decay.

Special foods and methods of infant-feeding for the production of structural tooth resistance ever have been and must continue practically abortive; and especially so as affecting aggregations or any considerable numbers suffering from defective dentures, hence no investigations were made in this direction. The very pinnacle of absurdity in this field seems to have been attained at a recent dental meeting in Richmond, when in criticising certain proposed measures for compulsory teachings respecting the teeth and enforced methods of caring for them, in the public schools, one gentleman maintained that the wiser and better course would be for dentists to teach physicians (!) the proper methods of attending to the dentition of children; for physicians, having in their charge the "little stomachs" of the children, could prescribe and regulate food for them and thus maintain good digestion and consequently produce good teeth. This incident is introduced here to give emphasis to the impracticability of *any* systematic regulation of children's diet, and because it so plainly illustrates the *reductio ad absurdum* of the proposition that a physician's care or any special feeding will or can effect systemic assimilation of special articles of food to the production of structurally good teeth. Given food in proper quantity and in variety such as is ordinarily found in the home of an

American family, the system will unerringly appropriate the elements required for tooth-building, through the same elective affinities that obtain in the consolidation of other tissues, and by no other means. The important work devolving on the physician or dentist is to so control environment during the eruptive stage and thereafter (a matter reasonably within the province of either profession) that the formative processes exhibited in the activities of the pulp shall not be hindered or disturbed by adverse chemical agencies acting upon the erupted parts of the tooth.

Dr. Williams of London, whose writings have been received with considerable favor in this country, in a letter in *Items* said: "I have repeatedly pointed out that in my judgment the greatest hope for the future in saving human teeth lies in the direction of the prevention of decay by the use of germicides." The inadequacy of this proposition will be plainly seen when we consider that decay in human teeth is by far the most controllable affection to which they are subject; that bacteria is but one of several causes of decay; and if it were *the* one and only cause of decay and other troubles of the teeth, there has yet been discovered no effective germicide which can be safely used in the mouth. The same writer says further upon this subject: "In my own practice I have relied chiefly upon a strong solution of hydronaphthol in oil of cassia. . . . This I use freely in all cavities, and then before filling I use a varnish of Canada balsam in chloroform in which there is ten per cent hydronaphthol. My patients use a dentifrice in which hydronaphthol and oil of cassia are the principal germicides. Decay in many instances has been almost entirely arrested." Although Dr. Williams may have relied on these agents in his own practice, until we are given further and more specific information respecting the action of "hydronaphthol in oil of cassia," and some reliable data relating to the efficiency of their germicidal properties, as well as the practicability of their use in dentifrices and mouth-washes, we cannot feel any assurance whatever that in these agents we have any valuable addition to the present long list of so-called germicidal nostrums urgently seeking recognition. Whilst germicidal washes may possibly be made of some value, at present they fall very far short of meeting the requirements for the prevention of tooth decay.

If the generally accepted theories respecting the causes of caries are correct, among which the presence of bacteria and their products

stands most prominent, it necessarily follows that *environment* is the important factor governing decay of the teeth; and to systematically enforce a complete and positive change from bad to good in the mouth and about the teeth is a method of prophylaxis both efficient and safe. The practice conceived, suggested and instituted by the author, briefly stated, consists in thorough removal at frequent and regular intervals—once every month has thus far proven most satisfactory—of all accumulations, whether solids, inspissated secretions, semi-solids, or bacterial formations, from *all* the exposed surfaces of the teeth, leaving the enamel, or whatever of the tooth may be exposed, thoroughly polished, and thus in the best condition to avoid hurtful deposits and equally to favor all efforts of the patient in the direction of cleanliness.

It is readily demonstrable that to maintain true cleanliness in the mouth, even on the part of the most painstaking, is impracticable if not impossible, without the direction and assistance of an intelligent and expert operator. There are the calcific deposits, constantly increasing; the more immediately hurtful acidulated bacterial accumulations; inspissated mucus retaining decomposing particles of food and furnishing most favorable conditions for bacterial culture. Besides these there are irregularities and certain formations and positions inaccessible to all ordinary methods of cleansing, which implies the perpetual retention of matter inimical to the teeth and gums. These injurious accumulations, with their equally injurious emanations, hitherto overlooked and disregarded by physician or dentist, are not only causes of decay but are equally causes of recession of gums and absorption of alveolar structure; the latter condition much more to be dreaded than simple decay of the teeth.

Recognition will yet be made of the important fact that to the *presence* rather than to the quantity of foreign matter on and about the teeth the beginnings of pyorrhea are wholly attributable; and the deleterious influence of a breath perpetually loaded with offensive emanations from this source—especially at seasons of salivary inactivity—as during sleep, will, we believe, ere long be disclosed as an important factor in many pulmonary and digestive disorders, and will be taken account of in medical diagnosis and treatment.

The prophylactic treatment advocated in this paper for the prevention and for the relief of these and other conditions has been found to be not only possible, but its feasibility has been clearly

demonstrated. I have described the process more commonly as cleaning the teeth, but there is a wide distinction between the ordinary methods of cleaning the teeth and the system of prophylactic treatment herein contemplated. The difference is: 1st, in appliances and methods; 2d, in extent and thoroughness of the operation; 3d, in the persistence and frequency of the treatment; 4th, in the object sought—the prevention both of decay and pyorrhea—and in the results attained.

When necessary scalers should first be used for the removal of solid deposits and such mucus concretions as may have been the means of softening or causing a partial decalcification of cervical enamel. Following this, the teeth should be thoroughly polished on *all* exposed surfaces—the labial, buccal, palatal, lingual, mesial, distal, and, in cases of developing teeth, the occlusal as well. The hand polishing with stick and pumice should reach to every exposed portion of the tooth, and be continued until the touch, which can be educated in this matter to distinguish better than the eye, gives evidence of thorough cleansing and polishing. The operation is best done with properly shaped orange-wood sticks charged with powdered pumice-stone. The prepared orange-wood is most conveniently handled and carried to positions desired by means of a Jack porte-polisher.

The grit of the not too finely powdered pumice has been found best adapted for removing viscid, mucoid accumulations and for polishing enamel surfaces; and what is even more important, the friction of the stick and pumice as applied by hand—*for power polishers should never be used*—seems to excite or stimulate the vital forces of the tooth to increased activity in the removal of waste, and the deposit of new and better material. The effect seems like massage treatment for muscular tissue.

The benefits resulting from this treatment are marked and readily seen, and extend to all parts of the tooth. Whilst the deciduous and young permanent teeth are most responsive, all classes of teeth and teeth of all ages are peculiarly benefited by the treatment, as is plainly shown in them after a few months of regular and careful massaging. These are striking exhibitions of improvement in color; of change in enamel, from an opaque appearance or condition to that of ivory-like translucency; of apparent increase in density, and a general improvement denoting a condition of decay-

resisting structure—changes which have impressed and even astonished the author as perhaps no other results from operations on the teeth or in the mouth have ever done.

Of the about forty cases of all ages, which have come regularly under a system of monthly treatment during the past two years, there has been no case of new decay which could not be readily accounted for, neither has there been an instance of beginning pyorrhea or other pathological condition of the gums. I have under observation now cases of the greatest interest, where the dark yellowish stains in cementum and dentin just above the enamel, and white spots under the enamel, denoting defective nutrition, are beginning to take on a better condition. The yellow is being replaced by better colored material and the white spots are disappearing, indicative of resumption of normal nutrition. In every case the enamel under this treatment assumes a more pleasing appearance and seems to take on a more vital condition. Erosion is retarded, if not arrested, and the same may be said of that form of wasting which occurs on the labial and buccal surfaces of the teeth, which Dr. Thompson in an article (July, 1900, *DIGEST*) has mistakenly classed under the head of "mechanical abrasion" due to mechanical friction, the result of too vigorous use of the tooth-brush and too gritty tooth powders. My observation leads to the conclusion that these channels or grooves cut across upper or lower teeth, just at the gum margins, are *never* the result of mechanical abrasion. They appear in the worst form in situations which preclude abrasion from the use of the brush or from any form of friction. They are due to the mucus secretion, intensified in its chemical action by being mechanically held in contact with the teeth by the lips. This condition is found more commonly in mouths where there is limited action or movement of the lips, either in speaking or laughing, thus presenting little opportunity for commingling of mucus and saliva for the neutralization of the acidity of the former.

We need not dwell upon what may be classed as minor benefits resulting from this treatment, although they are as distinct and positive as are the thwarting of tooth decay and the prevention of pyorrhea. I close with the bare mention of a few of them: Entire and frequent change of environment, resulting in a state of cleanliness of the teeth and mouth unapproached by other means; a breath freed from the emanations of offensive matter persistently on the

teeth; perfect physiological gum and substructures; familiarizing children and young people with the dental chair and removing the fear of dental operations; teaching and assisting in the proper care of the teeth at the most critical period of tooth existence; relief from the torturing dread of dental operations, and the fulfillment of the designs of nature, in the comfortable use of the natural teeth through to old age.

### ARTICULATION AND ARTICULATORS.

BY J. A. ROBINSON, D.D.S., MORRISVILLE, VT. READ BEFORE THE VERMONT STATE DENTAL SOCIETY, AT ST. JOHNSBURY, MAR. 21-23, 1900.

We all know of the life work of the late Dr. Bonwill on this subject; of his circles, equilateral triangles, etc. You will find many solid truths in his work, and though there may be several things therein that are not essential to the proper articulation of the teeth, still there are ideas which, if rightly understood, will help us to be more certain in this line of work. There are certain laws which govern every motion of the body, and the nearer we approach those laws when supplying artificial members to that body—be it teeth, eyes, hands, or what—the more perfect the use of that substitute.

While Dr. Bonwill may have gone further than he need in some directions, he did not carry his work far enough in some others, as I will explain further on. I think the Bonwill articulator was perhaps the first step in advancement in the right direction. The work as done on the ordinary articulator in use can be but faulty and is tolerated because of its necessity.

Too much of this work is left to the three-dollar men, and for want of anything better the time is soon coming when that class of work will answer the purpose as well as better because of that necessity. Perfect work cannot be done on the ordinary articulator; there are certain movements of the human jaw that should be had in the articulator to get the best results. If there is an average of four inches from the center of one condyloid process to the other, and the same from the center of either condyle to the center line at the point of meeting of the cutting edges of the lower centrals, does it not stand to reason that artificial teeth set up on an articulator built on the Bonwill triangle would be more sure of perfect articulation in the mouth?

I think you will find the necessity of using an articulator of dif-

ferent construction from the ordinary one, which measures but two inches or less across the condyles or bearings; one which will give the motions of the lower jaw or maxillary, not only in the hinge or direct up-and-down swinging motion, but more particularly in the lateral motion or the motion made in chewing. After studying these you will not wonder at the remarks made by many who, wearing artificial teeth, say they do not chew their food but simply pound it. Their teeth were made to be used in but one way, and that directly up and down—any other motion would tend to dislodge their plates.

I wish it understood I am not advertising or advocating any particular articulator, but in order to make my work a success I have used several different ones, and will show several here, and will give what to me are the strong and weak points of each. You all have seen the Bonwill articulator. I need not say much about that one. The Gritman, while embodying the better qualities of the Bonwill, excepting its lightness, simplicity and freedom of vision of the work from the back, goes a little further and provides for adjustment of space between the bows, and also trying to better imitate the natural movement by providing for the downward motion of the condyles at the same time as giving the lateral movement of the lower maxillary. I also have the Snow face bow, which though made to be used with the Gritman articulator, can be adapted to any of those made wide. This has proven in my hands to be another advance step. It is but a short time since the idea that how the models went into the articulator made any difference with the work, was brought to my attention, nor have I taken any particular trouble to get the mesial line at the front of trial plates within the prescribed four inches from the joint, to say nothing as to whether the line was in the center of the articulator, or the back of models were up or down, or swung to either side from the position they should be in. I take it that "right is right," rather than "what is right," and if we wish to meet with universal success, we must have everything as nearly right as possible. If the face bow were used by operators to set their models, more successful work would be the result; since using it my success has been gratifying, as the teeth when in the mouth more correctly fill the place of the lost natural organs.

I wish now to take you a little further towards a bettering of

results in the articulating of artificial teeth, the better to imitate the natural ones. I claim the usual relation of the jaws, or rather the two sets of the human teeth, are as a ball and socket, or better, a ball and cup, as some might think I referred to the ball and socket joints; not so. But to explain; the lower jaw, carried either laterally or forward and back, will resume its place when carried to its natural position with a motion as though a cup were being placed on the side of a ball just adapted to it. Take a small, straight edge like a pencil, lay it across the lower teeth, and you see that while buccal cusps touch the pencil, the lingual do not. By reversing the pencil to the upper teeth you will find the opposite; the palatal cusps touch while the buccal do not—showing the idea of the ball and cup, the upper teeth forming the ball, while the under form the cup.

The line drawn in conformity to the faces or grinding surfaces of the posterior teeth is curved, and the arc of a circle varying from a very small one to almost a straight line. I have used the arc of a circle twelve inches in diameter, as that perhaps is an average and a fair one to work on, though you will find many which are much smaller. Looking at the Bonwill diagrams, illustrating the teeth in mastication, you find he has the line drawn across the masticating surfaces of the molars, a straight one. I claim the line should be the arc of a circle. Then when the lower jaw is carried to the left in the act of chewing, the cup slides to its place on the ball and stops against the cusps on the other side. Dr. Bonwill curved his line toward the ramus, but not in the direction I have just mentioned. The teeth, if without cusps, and arranged as in Dr. Bonwill's drawings, would continually slide from side to side; while arranged as I claim is right, would come to a common center and remain there until again carried to either side as in masticating.

I will give you an outline of my methods: Impressions, models, bites or articulation taken and made as usual, being sure each step is correct. The bite-plates are then locked together with the little bite locks which I devised several years ago. These do away with all the uncertainties of the usual method of marking them with a series of crosses, etc., taking from the mouth separately and trying to get them into the same position they held while in the mouth. By locking and removing them together they must needs be just as they were in the mouth; then by using the face-bow you will get



the models in the articulator, so there is no doubt but they are right. Then set up the front teeth of both sets, fastening them to trial plates slightly, as you may wish to change some of them a trifle. Then, turning back the upper bow or top of articulator with the upper model, and attaching the convex disc, set the remaining under-teeth to the disc, making sure the inner cusps touch it as well as the outer. Thus making plain the reason for wanting plenty of space at back of articulator the better to view the work, even the front under-teeth are to be set to the disc. After the lower ones are set, remove the disc, turn back the upper model, and articulate the teeth to the lower ones. When I say articulate to the lower teeth, I mean it, and not merely touching them on the outside or buccal cusps; be sure of the articulation on the palatal side.

It is sometimes difficult to secure teeth that will conform to this method without some grinding—not of the cusps, if avoidable—to shorten them so as to go under the arch. It is also difficult to use gum teeth as now made. I am sometimes obliged to turn a bicuspid or molar round wrong side out to make it conform to my idea. Sometimes when articulating to natural under-teeth I crowd a tooth in nearly out of sight, at other times turn nearly or quite a quarter round. The over-bite of the superior incisors should not be enough to interfere with the perfectly free lateral and forward and back motion of the lower maxillary.

When the plates are completed the lower set is touched up on the convex side of a corundum wheel, which is made on the same arc as the disc, and the upper on the concave side; this is to grind off any particular cusp that might interfere with the free motion of the jaws, as the slightest obstacle may tend to destroy the easy sliding movement necessary to the perfect working of the teeth.

The wearers of plates carefully made, following these methods, have, I believe, as nearly a perfect denture as it is possible to make; they do not have to pound up their food, but can masticate or chew it as well as is possible with other than the natural organs. I have had the very best of success with my cases since adopting these methods.

I will call particular attention to two or three things: First, the usual method of articulating an upper set to the natural lower teeth; as a general thing the masticating surfaces of the lower teeth turn into the mouth perhaps more and more as time goes on, and

when we set up teeth to articulate with such, there is a tendency on the part of many to articulate simply to the buccal cusps—more especially in using gum or block teeth. This will undoubtedly make a set that looks well out of the mouth, but it is like eating with pegs to use such a plate. With teeth articulated like some I have brought with me, how much better mastication could be carried on than if the teeth touched but on buccal cusps! Second, articulate the teeth in such a manner that when the lower jaw is carried forward, the pressure or bearing is on some of the back teeth rather than on the incisors, also the same while using the lateral movements.

Some think there would be no difference between teeth set up on articulators two and four inches between bearings, but there is. The circle or arc of a circle cut from the center of lower centrals, is much different, whether the compasses are set one or two inches from a line drawn backward from said center and intersecting a line running at right angles from it, representing the line of bearing of the articulator, or from condyle to condyle; and as one method is right, and just as cheap, let us adopt it.

Now a word more about articulators. The Gritman, while it has the sliding motion at the joints to imitate the downward motion of the lower jaw at the same time as the forward and lateral movements, still when in use the bows are nearer together by one-eighth inch when lower bow is brought forward than when at rest. I have overcome that fault in my articulator, as the bows are further apart when in that position, thus doing away with the breaking down of plaster cusps when articulating teeth to such. The upper bow can be turned back further than the Gritman, and is easily removed when desired. The springs used are too stiff in all of them. I have used mine with but a small rubber band, and some of the time without any sort of spring, as when left alone the weight of the cast will usually bring it to its right position.

The Gritman is the one I have used the most, as I have had it the longest. It has not enough space for viewing the work from the back; the inability to turn the top over further is to me a detriment, as is the lowering or nearing of the bows when giving forward motion to lower bow; this latter trouble can be easily remedied by filing off the plane on which the regulating screw works to a proper bevel. It is of the right width, uses bows, and on the whole I am

much pleased with it. The Antes has several good points as well as bad ones; the lacking of lateral motion may be an advantage to some, but not particularly so to myself; the locking back of the top is all right. It might be made a first-class articulator with a few changes; it is not wide enough at the bearings, has no provision for raising the upper bow when springs are deflected; the spring in this as well as in others is stiffer than is necessary; the vision of work from back is not materially obstructed, but would be if made wider, except across bearings. I much prefer the bows to the cast-plates to which to attach the models. The Bonwill sent me by a manufacturer has the up-and-down swing, but is only two inches wide across bearings and has no lateral movement.

The No. 7 or improved Bonwill is similar to the original, light, strong, well made and nicely finished, and is all in all a very good articulator, needing but two or three changes to make it all right. The plate for the adjusting screw is too small, not of right angle, and it does not allow of different thicknesses of models. The Bonwill, as made by myself, does away with part of these objections, as I have more space to view the work from the back, the adjusting screw above out of the way; and the angle or bevel of plate below the screw is such as to drop the lower model when using lateral movements.

Do you have upper plates to repair that are broken or cracked down through the center? Nearly all of us do. I think they are cracked or broken principally from one of two causes, perhaps both. One is the setting together of the jaws while sleeping, so hard and tight that something has to give. I believe this causes more trouble by grinding or knocking off the teeth than breaking the plate. The chief cause of the cracked plates to my mind is articulating the teeth on the principle just the opposite from what I have been describing, i. e., using the under teeth as the ball, the upper as the cup; then when in use the upper teeth are spread every time the mouth is closed, owing to the wedging motion. The same conditions exist when articulating upper teeth to the buccal cusps of the lower ones.

One thing more: I never sacrifice adaptability to looks when articulating artificial teeth, and that is my first and chief reason for using plain teeth. If we had a more perfect imitation of the natural gums I would never think of using block teeth unless the patient

particularly demanded them; they make the best looking set out of the mouth—there is no disputing that—but that is the only thing to recommend them, for you cannot articulate as you should and keep good joints. If you are making a set to *look* well out of the mouth, use block teeth, but if you are making a set for *use* in the mouth, use plain teeth every time. I wish to be emphatic on this point; never sacrifice adaptability to looks. You may possibly find you really have both when you put your case in the mouth.

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In connection with Dr. Robinson's paper he had some twenty sets of teeth that were articulated by different plate-workers, making a very interesting and instructive display. It cannot be said that many of them were perfect specimens of the art, for there were but few that would be accepted by some of the better operators. As there were no marks on them to enable one to know who did the work, no one could feel hurt at just criticism. The greatest mistake made by many is in articulating (they do not articulate, so should not be called articulations), the setting the teeth so they touch only the buccal cusps and do not furnish any grinding surface. The set the Doctor showed, where he turned the second bicuspid and molars inside out in order to articulate with plaster lower molars and bicuspid, indicated the idea very plainly: others, using gum teeth especially, in order to keep within line, sacrificed articulation for sake of the looks. Dr. Robinson does not approve of that unless in case of the eight front teeth, including the first bicuspid with the six anterior teeth. You must care more for adaptability back of them. He advocates throwing away the cuspid and using the second bicuspid in their place when patient has but few lower teeth, and in setting up an upper set. Many a good-looking articulation set up on an ordinary articulator showed pronounced defects when shifted to an articulator having the lateral and forward and back motion, as is made in chewing. As soon as articulator was used by depressing the springs, the teeth would fall like hail (being mounted in wax or gutta-percha only). Some under teeth were so set in from the arch that if made up in actual practice the tongue would lift the plate every time used. While some were set up somewhat in conformity to Dr. Robinson's method, others were directly the opposite. Much blame can be ascribed to the articulator, the operator often being unable to see inside.

## **Digests.**

**OSTEOPLASTY OF THE LOWER JAW.** By Dr. V. Zyckoff. Various devices have been employed to repair defects in the inferior maxilla. The writer considers the use of pieces of living bone for this purpose. These pieces may be removed entirely from some bone in the same individual, or they may be cut so that a pedicle is left, attaching the bony plate to the bone from which it was taken. The pieces of bone that are transplanted must be perfectly aseptic, and must include periosteum and medullary substance, in order that the plastic operation may be successful. The writer reports a case in which he performed osteoplasty of the lower jaw by a very simple method. A large part of the bone was necrosed after noma in the region of the lower lip and chin. A plastic operation was first performed, closing the defect in the lower lip by flaps of skin taken from the cheeks and neck. But this was not satisfactory, for there was continuous salivation and an ugly deformity of the lower part of the face. An incision was made along the lower border of the jaw, the bone was exposed, and a plate was sawed from the left side of the jaw, comprising about one-third of the height of the body of the bone and about one-half its thickness. The bridge was a trifle longer than the gap in the middle part of the jaw that was to be bridged over. One end of this bridge was fitted into the depression on the left side produced by the excision of the plate, the other into a depression on the right side of the jaw made with a chisel for this purpose. The rather profuse hemorrhage from the medullary cavity of the bone was arrested by plugging with surgeon's wax. The bridge was sewed to the frenum of tongue by means of a deer-tendon suture. Wound healed promptly.—*N. Y. Med. Jour.*

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**CARBOLIC ACID GANGRENE.**—That carbolic acid, applied externally in weak solutions, may cause gangrene of parts of extremities has been known for something like thirty years, but unfortunately this knowledge is not general, either among the lay or medical public. Harrington's article on this subject is therefore a timely and also a valuable one. The cases he reports, added to those recorded in the literature, make a total of 132 examples; and Harrington thinks it probable that many hundreds of fingers have

been destroyed from this cause. The popularization of carbolic acid as a household remedy for the treatment of small wounds and bruises is undoubtedly largely responsible for many such results, but in not a few cases the treatment has been instituted at the suggestion of physicians, and, we doubt not, by the advice of druggists as well. "An aqueous solution of carbolic acid (1 to 5 per cent), if applied to an extremity, as the fingers or toes, for a number of hours, in the form of a moist dressing or poultice, may produce gangrene or total destruction of the part." This may result without the effect of compression, merely from wrapping a cloth wet with the solution around the member. The length of the application need not exceed 12 to 24 hours, if the cloth is kept moist during this time. The explanation of this untoward result is not clear. It has been suggested that the gangrene results from the action of the acid upon the nerves of the part; from the production of thrombosis and prevention of nutrition; from direct chemical action on all parts of the tissues. Lévai showed that dilute solutions of other acids and of alkalis—hydrochloric, nitric, sulfuric, acetic, and caustic potash—may have the same effect when similarly applied. It is plain that the public, including druggists, should be taught to use other substitutes for wet dressings for trivial injuries. Harrington suggests tincture of hamamelis or solutions of borax or boracic acid. The fact that gangrene does not always result from application of carbolic acid makes this agent more dangerous.—*Ed. Jour. A. M. A.*

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**NITROUS OXIDE GAS GIVES A WEEK IN FOUR SECONDS.** This is the experience of a man who was under the influence of gas four seconds. One day years ago, shortly after laughing gas was introduced as an anesthetic, I had a case of rip-roaring toothache and went to a dentist to have the molar snatched out. I remember leaning back in a chair and taking a few whiffs of something that tasted sweet, and then, in the twinkling of an eye, I found myself on the quarter-deck of a man-of-war. There was no middle period of drowsiness or confusion; the thing happened in a flash, and strange to say, it seemed perfectly natural. I understood, without the slightest bewilderment, that the civil war was in progress; that I was an ensign on a Federal cruiser, and that we were in search of the Alabama. I had been in the navy and the routine of the ship was as familiar as my own name, I seemed well

acquainted with everybody on this particular vessel, and as I paced to and fro I chatted with my fellow officers about the weather, the war, the chances of the chase and many other topics of the time. The day wore on, evening fell, and I went to mess, where I had a long debate with the doctor on certain operations for wounds.

After my watch that night I turned in dog-tired and slept till dawn, and, not to fatigue you with my story, a week rolled by, filled with all the innumerable incidents, details and duties of life aboard ship. We told stories, sang songs, lounged for long hours under the stars, and speculated on the probabilities of a fight. One afternoon, to come to the point, we sighted the Alabama, and, after a chase about which I could write a volume, overhauled her, and the battle began. It was no long-range contest, but a duel to the death at pistol shot, and at last, riddled, torn and littered with dead, both ships closed in and the order rang out to clear for boarders. I was one of the first men over the side, and as I landed on the blood-soaked deck an enormous negro suddenly loomed above me with an upraised club. To this moment I can recall my rage and horror at that uncouth assault. I tried to dodge, but too late; the bludgeon struck me squarely on the jaw and with a force that seemed to rend my skull in twain. I could feel my bones crack like egg shells. The whole side of my face was driven in. I knew I was killed. Then I opened my eyes and saw the dentist holding out my tooth. I had been unconscious exactly four seconds.

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**CARIES RARE IN HINDU TEETH.** Pessimistic prophets declare that future generations of humanity will be toothless. Civilization has certainly brought with it, from one cause or another, a great increase in dental troubles, and the number of people nowadays whose teeth are either lost or diseased at an early age is very large. To a great extent this must be ascribed to neglect. Some observations on the teeth of the Hindus by Dr. Egbert were recently quoted in the *British Jour. D. Sc.* In his experience natives of all castes, from the Brahmin to the pariah, have uniformly large, strong, and exceptionally well-developed teeth, with the third molars and lateral incisors developed proportionately to the other teeth. In the hundreds of dentures which he has examined among Indian natives he has never seen a single malformed molar or lateral incisor, and these teeth were always present. The Indian people are remark-

ably exempt from caries, and do not often lose their teeth from this cause. There can be little doubt that this immunity is largely due to the fact that careful and regular cleaning of the teeth is a universal habit in India. It is strictly observed, because it is laid down as an important part of religious ritual. Very exact rules for its performance are given in the great book of Brahmin ritual, called *Nitia-Karma*. To clean his teeth the Hindu uses a small twig, one end of which he softens out into the form of a painter's brush. Squatting on his heels, and always facing either east or north, he scrubs all his teeth well with this brush, after which he rinses his mouth out with fresh water. There is, indeed, much in the personal habits of the Indian races which might with advantage be imitated by Western peoples. All Hindus, for instance, strictly observe the custom of washing with water after answering a call of Nature, and the European habit of using paper is looked upon by them as an utter abomination, of which they never speak except with horror. They object just as strongly, also, to our use of a handkerchief which is afterwards put in the pocket. The general neglect of the teeth in this country is certainly deplorable. Even among the richer classes it is quite uncommon to meet with people who make a regular practice of cleaning the teeth after each meal—a most desirable habit on hygienic grounds—and large numbers of the lower orders never use a toothbrush at all. The vegetable nature of the Hindu's food probably has its influence in rendering him less prone to caries than the meat-eater, but there can be no doubt that he owes immunity from much pain and ill-health to the salutary habit which his religion has wisely enjoined.—*Brit. Med. Jour.*

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**FALSE TEETH IN ANCIENT TIMES.** The *British Med. Jour.* says that in a recently published book entitled *La Prothèse Dentaire dans l'Antiquité*, Dr. Deneffe quotes a number of passages from the Latin poets who show that false teeth were in common use among the Roman ladies in the first century of our era. Several of Martial's epigrams refer to the subject. Thus in one he speaks of Ægle as having bought himself teeth of bone and ivory. In another Lecania's snow-white teeth are said not to be her own. In another we are told that Galla takes off her teeth just as she does her dress before going to bed. Lælia also has her bought teeth flung in her face. The *Journal* thinks, however, that in regard to



another epigram addressed to Maximina, Dr. Deneffe has misconceived the poet's meaning. The passage runs:

Non dixit tibi. Tu puella non es  
Et tres sunt tibi. Maximina, dentes  
Sed plane piceique buxeique.

Maximina is brutally told that she is no longer a girl, and that she has but three teeth, and those like pitch and box-wood. The reference clearly is to the discoloration of the poor lady's teeth, not to the material of which they were made. Horace, in describing (*Satires*, 1, 8) how the two witches ran away, scared by the portentous flatulence of the god Priapus, says that Canidia's false teeth fell out, whilst Saganæ dropped her borrowed locks. (Canidiæ dentes, altum Saganæ calicudrum excidere \* \* \* cum magno risuque jocoque videres.) Dr. Deneffe is disposed to give the credit of the invention of artificial teeth to the Phenicians. A set was found in the necropolis of Saïda (Sidon) by M. Gaillardot in excavating some tombs which are believed to date from six centuries before Christ. Certain objects found with the teeth suggest an Egyptian origin, and it is possible that the Phenicians may have learned this branch of the dental art from the wonderful people who dwelt by the Nile. It is probable that the Phenicians, who were great explorers and traders, introduced false teeth into Greece and Etruria, whence in due course they found their way to Rome.

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**SULFURIC ACID IN TREATMENT OF ROOT-CANALS.**  
By M. H. Evans, D.D.S., Toledo, Ohio. Read before Toledo Dental Society, May, 1900. Sulfuric acid is an oily-looking, heavy liquid, without color or odor, but having an intensely acid caustic taste, and a strong affinity for water. Internally, it is a powerful tonic, an antiseptic and refrigerant. Externally it is used as a caustic. One of its compounds, aromatic sulfuric acid, is an astringent and for a long time has held a place in dental materia medica in the treatment of diseased gums.

Perhaps to no other subject has so much space been devoted in our dental journals as to this operation which so often ends in failure. In the treatment of root-canals in septic condition, and for opening up those fine tortuous canals we so often have to deal with, I get most satisfactory results from the use of sulfuric acid. For instance, we are called upon to treat a tooth, the pulp of which has

died, abscess has followed and the contents have discharged through the gum. After applying the dam remove as much of the contents as possible by careful instrumentation and the use of peroxid of hydrogen; introduce, by means of cotton on a broach or the syringe, a twenty per cent solution of the acid and pump, if possible, into the area of the abscess. This will sterilize the root-canal, as no germs can live in its presence; at the same time, being corrosive and astringent, it will break down and destroy the diseased tissue at the end of the root, leaving a fresh clean field for nature to take care of itself, with the assistance of milder antiseptic treatment.

As to the effect of the acid solution on the bone tissue surrounding the roots, Dr. Geo. Pollock says "dilute sulfuric acid does not affect the living, acting chemically on diseased bone alone." This may seem rather heroic treatment, but experience has proven that there is little or no danger of injuring the tooth or surrounding tissues, if carefully used. Its action can be stopped at any time by a saturated solution of bicarbonate of soda.

Now we have to deal with the buccal roots of an upper or the anterior root of a lower molar, into which we cannot introduce the finest broach. Place a pledget of cotton, saturated with fifty per cent solution of the acid into cavity, leaving it twenty-four to forty-eight hours; on removing you will find a clean white surface with a dark spot, indicating the opening and making it possible to introduce the broach and more of the solution. This can be repeated until the apex is reached. The acid attacks the tooth substance vigorously, breaking up the lime salts, forming a new compound and establishing a barrier to further action of the acid. Dr. Cassidy says: "The acid attacks the earthy portions, forming insoluble calcium sulfate and at the same time dehydrating the animal or gelatinous portion, which is made up of carbon, hydrogen and oxygen; these two latter elements are withdrawn, as already alluded to, leaving the indestructible carbon as a residue, to be incorporated with the insoluble sulfate, producing this, a protecting covering to the unaffected parts beneath against further inroads, both of the causing agent and other solvents. It is therefore self-limiting or under perfect control by the use of an alkaline solution.

I have frequently used a twenty-five per cent solution in removing a small portion of the pulp near the apex very successfully. In a recent paper Dr. Callahan speaks of removing a broken broach in

the following manner : The canal should be filled with the acid solution and a solution of bicarbonate of soda placed in the pulp chamber. As the alkali works its way rootwards, successive explosions of carbonic acid gas will occur until eventually the gas will be formed by the action of the alkali on the acid beyond the broken broach and the latter will come up into the crown cavity in a boiling mass of matter—this seldom fails.—*Ohio Journal, July, 1900.*

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UP-TO-DATE REPORT OF PROCEEDINGS OF AN UP-TO-DATE MEDICAL SOCIETY. By Dr. Frank E. Bunts. First Surgeon: I have to bring before the members of this society a report of an extremely interesting case of rupture of the liver. The patient was accidentally kicked over a fence by a mule, and fell with his right side striking on a nigger's head. No symptoms developed for twenty-four hours, when the family becoming alarmed at the absence of symptoms, I was called in to see the case and at once diagnosed a rupture of the liver. The signs were somewhat obscure, but an operation made some thirty-six hours subsequent proved the correctness of my observations. The liver and portal vein were carefully sutured, the abdominal wound closed by four rows of sutures—catgut, silk, silkworm gut and silver wire respectively—and the patient made an uneventful recovery, the stitches being removed on the seventh day, and the patient returned to his occupation as mule-driver two days later, or nine days from date of operation. In conclusion, I would say that the chief points of interest in this case are the accuracy of the diagnosis, as well as of the facts in the case, and the most excellent results following a most hazardous and desperate operation.

Chairman: The most interesting paper of Surgeon ——— is now open for discussion.

Oculist: I am sure we are very much indebted to Surgeon ——— for his most valuable contribution to surgical knowledge, and the case reminds me of the rupture of an eyeball in a well-known man about town, following an attempt to watch all the ballet girls at once. In this case I made a careful examination with the ophthalmoscope, finding marked evidence of blepharospasm posterior synechiæ and choked disc and external strabismus. The treatment consisted of a prompt removal of the eye. The cure was prompt and uneventful, and up to this date he has not attempted again to

attend a ballet performance. In conclusion, I again wish to congratulate the author and the society upon his paper.

**Gynecologist :** The subject under discussion is somewhat out of my line of work, but it is a very brilliant result and reminds me of a case of endometritis fungoidis complicating a Bartholinian cyst in a patient 96 years of age. In this case I removed the uterus and appendages per vagina after excision of the cyst. She made an uneventful recovery, and has since married and feels as young as she did seventy years ago. I thank the doctor for the opportunity which his paper has given me to present this case.

**Rhinologist :** I cannot allow this opportunity to pass without referring to a case which this valuable report of a rupture of the liver has brought to mind. Some years ago, Mary G. snuffed a bean up her nose. A careful inquiry at the time failed to reveal the bean, but yesterday, or two years from date of first observation, there appeared an unmistakable bean sprout extending at the anterior nares. I at once diagnosed a sprouting bean and removed it under cocain. No untoward effect was produced, the patient making an uneventful recovery. The interesting feature in the case was that the patient came from Boston, and had probably been addicted to the bean habit for many years. I congratulate the doctor upon his very able paper.

**Neurologist :** Rupture of the liver must call to mind of all of us that from sudden jars we may obtain ruptures of the cerebral sinuses, or hemorrhage into the spinal canal. In a similar case to that related by the doctor, motor paralysis was present from the moment of receipt of shock incident to receipt of check for an outlawed bill. I made the diagnosis without any difficulty and offered to relieve the patient of the exciting cause. This he refused, and his paralysis was recovered from in time to take in the races the next day. Again I wish to congratulate the doctor upon his very elaborate and painstaking paper.

**Second Surgeon :** I can but indorse everything that the author has said and appreciate fully the value of the paper. I wish to take exception, however, to the means of diagnosis, and to say that from the symptoms related there could not possibly have been a rupture of the liver—nor could he, in my estimation, have sewn up the portal vein without seriously interfering with the functions of the liver and bringing on an attack of the piles. In all the cases of this kind

in which I have operated I have made it a point at the same time to dissect out very carefully the pile-bearing area. In conclusion, Mr. Chairman, I would say that I hope no one will think from my remarks that I differ in any essentials from the practice of my distinguished confrere.

Orthopedist : During my connection with the Hospital for Cripples I noticed very often and have the records of 150 cases which show the difference in appreciation of pain in different children. In some of the cases of kyphosis a plaster bandage was well tolerated, notwithstanding the formation of decubital sores, extending down to and laying open the spine—while in others bitter complaint was made by the patients, and it was necessary to remove the plaster and apply it according to an original method devised by me. The resemblance between these cases and that related in the paper this evening is very marked, and I appreciate the value of this addition to medical knowledge as confirmatory of my own experience at the Hospital for Cripples.

Chairman : As there is no further discussion upon this paper I would say that we are all very much pleased by the elaborate and carefully prepared discussion which it has called forth, and I will ask Surgeon —— to close the discussion.

Surgeon —— : The field of surgery has been so fully covered that I feel it impossible for me to add anything to that which has been already said.—*Cleveland Med. Gazette.*

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SYPHILITIC LOCOLOSIS ALVEOLARIS. By G. Lenox Curtis, M.D., New York City. Read before Section on Stomatology, Am. Med. Assn., June 5, 1900. Dr. Farrar says: "I believe locolosis alveolaris is a disease of the peridental membrane aggravated by calcareous deposits on the teeth, which increases the inflammation so greatly that decalcification of the alveolar tissue results, and when this state exists the advance of locolosis increases more rapidly until nature makes a serious effort to expel the tooth, and if successful, the disease subsides and is lost from view. When all the teeth are lost locolosis ceases to be observed, showing that whatever the cause of the socket disease it does not reappear elsewhere."

Up to about twelve years ago I had treated several hundred cases of what I then supposed to be pyorrhea alveolaris. But in the light

of our later knowledge I am of the opinion that only recurring cases were worthy of the appellation. At that time I boldly resorted to all methods then in vogue, and freely referred my cases in consultation to those whom I believed to know most on the subject. Degeneracy, due to uric acid, and rheumatism were suggested, and as I found the rheumatic and gouty tendency in patients having the disease I inclined to accept these as causes, if not *the* causes. But later, when the treatment did not effectually suppress the disease, I was satisfied there must be something else behind it all which should be learned. Reviewing the history of many of the most obstinate cases, I found that in several I could trace syphilitic association. Believing much information might be gained I followed this trail. It was difficult to secure sufficient data, however, by which I could prove scientifically that which I suspected, for syphilis has such an insidious undermining effect, and patients are generally so unwilling to admit facts, that the study has many discouraging aspects. It is, however, my opinion that this disease does not show itself only in those persons who have contracted it, but may also be found in the mother as well as her offspring. It was in these cases that I found *locolosis* or *pyorrhea alveolaris* to be so well defined that I felt encouraged. But obstacles arose which retarded my speedily reaching a definite conclusion.

It was my hope at this time that I might gain something by turning these cases over to specialists in syphilis, gout and rheumatism for treatment, but the varied results led to suspicion, and to caution in speech, until I could get sufficient verified data to act more intelligently. In many cases I found that treatment had not been continued sufficiently to eradicate the specific poison, or the secondary effects thereof.

In 1890 I had an opportunity to study blood, and then it was that I became convinced that the usual method of its physiologic study was inadequate. I now believe the blood carries with it the active principles of most, if not all disease. Then the generally accepted plan for the examination of blood was through dry and stained specimens. Even to-day that plan is largely followed. Could any but the most tenacious germs stand the baking process which is claimed to be unavoidable? Not only are such specimens exposed to the oxidizing influence of the atmosphere, but to heat of such a temperature that it is injurious to them. It may be said that only

the survival of the fittest can furnish the possible opportunity of study, and then they can be recognized only after a course of staining that decorates them in "war paint," chiefs of their tribe.

Kircher, in 1695, claimed the disease to be due to living organisms, but it was not until 1772 that Löstörfér claimed to be able to distinguish by microscopic examination of the blood the presence of syphilis and other diseases. In 1890 Watkins, after studying various methods of blood preparation, came to the conclusion and published the fact that there was only one method of scientifically examining the blood, namely, doing it in its fresh state, and before any changes had taken place. He also found that by instantaneous photographing of fresh blood objects which would otherwise be overlooked were revealed and permanently recorded, showing facts that the dry and stained specimens failed to do.

In 1892 my attention was called to Dr. Watkins' method, and it so favorably impressed me that I have since devoted considerable time to it, and now I am so convinced that it is the only road to an accurate diagnosis of disease, that I am still continuing the accumulation of data, with more or less satisfaction, having for my chief guide a sign in the mouth, which I first observed many years ago, but the importance of which I then failed to appreciate. This sign, which I denominate "egg-skin eschar," I find upon the mucous membrane extending along the ramus and the buccal surface of the gums along the molars. Occasionally it is to be found upon the cheek, near Steno's duct and the angle of the mouth.

In the early treatment of this disease, when I found the eschar present, as it was in many cases, I learned to associate it with some obstinate forms. Five years ago I began sending patients to Dr. R. L. Watkins for blood examination, with the view of ascertaining what existed. This I did without giving him the history. The examination of more than one hundred cases revealed strong evidences of syphilis, and in every instance when the egg-skin eschar was found the blood showed unmistakable proofs of the taint; in fact, in every case where the blood showed this the egg-skin eschar was present. Dr. Watkins has repeatedly pointed out to me the syphilitic spore, yet the majority of my patients declared there was no foundation for the suspicion of the disease. But when they received treatment for it they were cured. Although some patients were honest in not knowing the history of their trouble, others did

finally remember that they had contracted the disease, and still others acknowledged it at once.

So confident do I feel that my views are correct, that I now treat all cases of this kind with antisyphilitic remedies, and a large percentage of them are beneficial. In several cases I have been misled and diagnosed suppurative gingivitis as pyorrhea alveolaris. This I did because I could not find the egg-skin eschar, and when the blood was examined and seemed to substantiate my suspicions I refrained from giving specific treatment. To settle the question, I placed several patients suffering from suppurative gingivitis under specific treatment. This caused such unfavorable symptoms that I was soon forced to abandon it. In one case, where the alveolar process on the palatal surface of the teeth was nearly destroyed, and where it was practically in a normal condition on the buccal and labial surfaces, I was puzzled to know why this affection was not general. When septic pulps, salivary calculi and syphilis were excluded, I concluded the trouble to be caused by the pressure from a vulcanite plate, to which was attached an artificial velum that had been worn twenty years.

In another case the disease was extreme in character. There was great destruction of the interdental process, accompanied by a discharge of pus. Many of the teeth could readily be forced by the finger  $\frac{1}{8}$  inch farther into the socket. A tumor, osseous in character, extended along nearly the entire length of the alveolar process on the buccal and labial surfaces of the upper alveolar ridge. There was, however, a break in the line of the tumor between the right central and right lateral incisor. The right central incisor had been extracted several years earlier. In this space was an artificial crown, attached to a small bridge-piece.

The cast of the lower jaw showed by the hypertrophied condition of the gum the extent of the pocket. At first this patient persistently denied ever having syphilis, but the evidence of it was proved by examination of the blood. After I had gained the confidence of the patient, however, he admitted that he had contracted the disease a dozen years before, but had been under treatment for it. He did not wish it known to any one except his physician, who had positively stated that he was absolutely cured. The patient now returned to this physician, told him my views as to the cause of the tumefaction, and that I said he was still suffering from the taint.



The physician made light of the diagnosis and persuaded the patient not to return to me. I regret not having an opportunity to finish the treatment of this case, as it would have been an excellent support to my belief that this class of tumors is the result of that dreadful poison. It is fair to state, however, that within a year the health of the patient so completely failed that he was advised to visit the hot springs for syphilitic treatment.

Where rheumatism is found to be present in a large percentage of cases, I believe it to be a coincidence, though not the cause. I believe that syphilis so reduces the existing power of the constitution that rheumatism more easily steps in, much the same way that it may while the system is under any degenerating influence. I do not wish it understood that I believe pyorrhea alveolaris exists in every case of syphilis, nor that syphilis is found in every case of pyorrhea. But what I do believe is that some form of syphilis may exist in nearly all obstinate cases of pyorrhea alveolaris that can not otherwise be proved. As proof of the condition I mention, such cases do get well, and remain so when placed under specific treatment until all signs of syphilis cease to appear, not only outwardly, but when the blood fails to show any evidence of it whatever. The value of blood examination, which tells when to commence treatment and when to cease treatment, in this, as in some other diseases, is evident. I also regard it to be of great importance in diagnosing remote causes. Indeed, I predict that the time is not far off when examination of the fresh specimen of the blood will be the principal evidence in proper diagnosis. I have thought that locolosis or pyorrhea alveolaris may be caused by mercurial poison, but investigation does not bear out this surmise, for I have found this disease where there has been no history of mercury given. Is it not therefore reasonable to conclude this form of the disease is aggravated, if not caused, by tertiary syphilis?—*Jour. A. M. A., Aug. 18, 1900.*

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**PERSISTENTLY RETARDED TEMPORARY TEETH.** By Dr. George S. Allan, New York. Read before New York Institute of Stomatology, March 6, 1900. April 1, 1897, Master A. B., eleven years old, was brought to my office by his father for advice and treatment. The lad is in every way, mentally and physically, except in that which I will presently refer to, strong and healthy. He is well developed for his years, and stands well in his school.

On examination I found that I had to deal with a case of almost complete retention of the first teeth, upper and lower. In the upper jaw all the temporary teeth were in their proper places, firm and strong in their sockets, the two central incisors only yielding slightly to pressure. Between the centrals, however, there was a supernumerary, and this extra was a little more shaky than its neighbors. Back of the temporary second molars there was enough swelling and enlargement of the gums to show that the first molars were pressing forward and might reasonably be expected to erupt at an early date. On the palatine border of the alveolar ridge of the upper jaw on both sides the swelling was very pronounced, so much so that the thickness of the ridge was apparently nearly double what it should be. The width of the jaw was slightly below the normal. The depth was, however, about correct. The probe indicated a thickness of about three-eighths of an inch of gum tissues over the first molars, but this could not be definitely determined.

The lower jaw presented a somewhat different state of affairs. The temporary incisors had been cast off, and the permanent centrals were about a quarter of an inch through the gum. The thickness of the alveolar ridge was not so marked as in the upper jaw, in fact, not enough to attract attention, and the left first molar was in place, but not fully erupted. The occlusion of both jaws was perfect. All the temporary teeth were healthy and strong, and of a dense yellow color, and hardly at all impaired by decay. The erupting first molar was not so fortunate, and showed signs of imperfect calcification and breaking down of its grinding surface.

The speech of the boy was not much affected by the small palate and lack of tongue-room; still it was noticeable. So far as I could learn, the boy's first set of teeth indicated no departure from normal conditions. They came a little tardy, and the two centrals were cast off and the two permanent centrals took their place in the regular course of time, so much so that this period of dentition attracted no attention. In order to account for so wide and exceptional a departure from natural conditions, the hereditary possibilities were first inquired into, but little light or information of value was obtained. Nothing similar or of like nature, more or less removed, was found to exist in any member of his family. His mother has a supernumerary back tooth between the left superior second bicuspid and first molar, but no other deviations from natural conditions.

The father, however, has a most pronounced protrusion of the upper front teeth, accompanied with occlusion of the lower front teeth, with the soft tissues covering the alveolar ridge just inside the upper centrals, and this peculiarity he has transmitted, most unfortunately, to two of his children. One or more of his sisters had like peculiarities, which were remedied in early youth, but in no direction can there be found any history of tardy eruption of either sets of teeth or undue retention of the first set.

Seeking further light in a different channel, certain not usual prenatal conditions of the mother were mentioned by the parents, and should be alluded to here as having a possible bearing on the solution of the problem, the more so as they were followed by other abnormal conditions in the child. As stated by the mother they are as follows: "When three months pregnant, the physician in charge suspected I had developed diabetes, and he insisted on my giving up all sugar, all starchy fruits and food, excepting bread only. I lived almost entirely on meat, eggs, and green vegetables; no dessert of any kind; only oranges were allowed, as they contained so little sugar. This diet was faithfully kept up until the child was born. He was a delicate baby, with an abnormal opening in his head, extending from the middle of the forehead to the back of his head. This closed very slowly year by year until he was four years old, when it entirely closed. The child cut his first teeth when he was seven months old; the other teeth came slowly; the last baby tooth was cut when he was five years old. He was born May 13, 1886, so he is now nearly fourteen years old and is cutting his first molars." The above facts and data were given to me March 1, 1899. I mentioned that the patient came first on April 1, 1897. Through some misunderstanding I did not see him again till February 2, 1899. The parents thought I did not care to see him, for the reason that operative interference of any kind was impossible and a waiting policy only was proper. This was, in the main, correct, but not to the extent they thought. Nothing was done at first but make X-ray pictures. They were not very satisfactory, though they did show permanent teeth embedded in the maxillary bones and the roots of the temporary teeth of full length, with their fair proportions not in any way curtailed by the process of absorption. On the patient's second appearance it was evident that, left alone, no change for the better could be expected for many years, if ever.

Nature unassisted either could not or would not give a helping hand. The two years of non-intervention left things practically as they were when first seen. Two more of the first molars had made their appearance, and the two lower centrals had increased their length to nearly full proportions.

The process of root-absorption was evident only by its complete absence, and the temporary process of tooth eruption, while present, was painfully slow and tardy in commencing. All that could be done was a new effort to catch on to the case. New casts and X-ray pictures were made, and more consultations sought for. Hardly any two dentists gave the same advice or explanation. They agreed only in saying that they had never seen the like before nor had they known of one. So on general principles reliance only was to be placed with the added satisfaction of knowing that, whatever advice or course of treatment might be adopted, one would have to take great risks, and quite likely live to see the day when he would be sorry he had not advised and done otherwise.

After much study I decided to have two teeth extracted and watch the result. The two left temporary molars were extracted on June 10, 1899, a few weeks before the boy, with his parents, sailed for Europe, to be away for four or five months. These teeth were extracted on account of their location in the middle of the arch, and the probability that the first permanent bicuspid would naturally be most advanced. Immediately after extracting two small braces were cemented to the teeth on the opposite sides of the vacant spaces to prevent any contraction, which, if it took place, as was probable if left alone, would certainly complicate matters if not make them decidedly worse. My opinion was that if the permanent teeth were given a chance they might and probably would slowly erupt, and the probabilities were strong enough to make it prudent to extract two temporary teeth in order to test the wisdom of my theory. The malformation and possibilities resulting therefrom were too positive not to make some effort to remedy it.

On December 14, 1899, seven months after the extraction of the two temporary teeth, other X-ray pictures were taken and careful examination and comparisons made with those taken at earlier dates. The net results, while not wholly satisfactory, indicate that the theory adopted and acted on was fairly well founded. A slow movement forward of the permanent teeth was indicated; a rapid

one was not looked for. What may happen in the future remains to be seen. Comparison was made at this time of the width of the arch with the earlier casts. This measurement showed that the width of the arch was increased fully an eighth of an inch.

In reply to my letters of inquiry Dr. E. S. Talbot says: "In dealing with the case of almost complete persistent temporary teeth at the age of fourteen, it must be remembered that there are several developmental factors to be considered. In the first place there is a tendency not marked but still observable for the periods of stress (which are indicated by dentitional phenomena) to appear later. In such cases the persistence of the temporary teeth would be an expression of advance. It has been observed that in such cases the temporary teeth remained nearly normal until removal was enforced by the appearance of the permanent teeth. In the case of a friend of mine every one of the temporary teeth remained until the thirteenth year, and would have remained longer had they not been removed. In other instances molars have remained still later. This condition of belated periods of stress would be an expression of advance. It is possible, however, that the condition described may be an expression of the law of economy of growth, whereby an arrested development on one side resulted in an exaggerated development on the other. This condition may therefore be a reversion to the monophyodont (one set of teeth) of the lower vertebrata, whereby the dyphodont (two sets of teeth) is sacrificed to a more primitive type. The monophyodont condition implies an extra allowance of teeth. Besides the rudiments of the enamel organs for the milk teeth and permanent teeth, there are additional organs present in a very variable condition and number, nearer the external surface. They are, however, very generally present, and are exceedingly similar to the youngest stages of the normal enamel organs. Kollmann and Gegenbauer believe that they are abortive rudiments surviving from an ancestral condition in which teeth were more numerous. It is more probable that this may be the case, since there is evidence of hereditary defect. There is continually going on in the system a struggle for existence between different organs, and this struggle for existence, unless balanced by the nervous system, is apt to result in the gain of primitive structures at the expense of those later developed. These laws govern dental embryology as well as embryology in general. The question as to treatment would hence turn upon the fact

whether this condition was an expression of advance like delayed periods of stress, or whether it was an expression of degeneracy under the law of economy of growth. In the latter case other stigmata of degeneracy would exist. It should be remembered also that proper development of the permanent teeth will turn upon, as Minot has pointed out, proper development of the dental shelf. This dental shelf is one of the latter development, so far as its relation for the provision for the permanent teeth is concerned. Interference from hereditary defect, or from causes operating during intrauterine life, with the growth of the dental shelf would interfere with the growth of the permanent to the gain of the temporary teeth. The dental shelf (being of the transitory structure type), like all such, is more liable to atavistic tendencies than permanent structures."

Dr. Levi L. Howell of East Hampton, N. Y., sent me the following report of a case in his practice: "Miss H., aged twelve years, began to show signs of mental weakness. In one year she became idiotic, lost the use of words, could not care for herself in any way or manner, refused to wear clothing unless it was fastened so she could not remove it, lost all regard for her companions; and the family after consultation had concluded to send her to an institution. She would not eat, and she would try to get to her mother's breast to nurse. Her mother asked me to see her and give an opinion whether the trouble could come from the teeth, and if so, could it be relieved; for the mother reasoned that the child could not eat or take food, or it would not want to go to her breast. I called and saw the child. No permanent teeth were in the mouth except the first molars, and they were all broken down. The gums were terribly inflamed and bled on slightest pressure. Two of the temporary teeth only were missing. I advised the immediate extraction of the teeth, for I knew nature could not tolerate such a condition of congestion and inflammation as existed without some reflex trouble. I was given *carte blanche* and extracted *every* tooth, upper and lower. In three years the child was able to attend school, and to-day is in full possession of all her normal mental powers, and has permanent teeth in their position in the mouth."—*International*, August, 1900.

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**GOLD TIPS FOR ABRADED TEETH.** By Dr. George Evans, New York. Read before First District Dental Society, Feb. 13,

1900. In cases of mechanical abrasion of the teeth, in order to prevent further wearing of tooth-structure, the custom of many operators is to cover and slightly lengthen the incisive or occluding surfaces with gold. The lengthening of the teeth improves the occlusion, or as many term it, remedies the "close bite." This operation has been, and is yet performed mostly with gold foil or some of the crystal golds. In cases of the incisors or cuspids a suitable cavity is formed in the central section of the incisive edge, slightly undercut as anchorage and foundation for the gold. Most operations of this character involve considerable labor. In result they largely depend on the skillfulness displayed in the condensation of the form of gold used. Gold foil or any of the forms of crystal gold are necessarily pure, as combined softness and adhesiveness depend on the absolute purity of the gold.

Pure gold in ingot form is a soft metal. In welding it as a filling material, a slight additional hardness can be imparted to the contoured section. This is accomplished by special manipulation of the consecutive layers of the gold during condensation. In cases of mechanical abrasion almost invariably considerable force is exerted in occlusion, and consequently the gold is subjected to severe friction. Under such conditions the gold is indented and gradually worn away. In cases where the force of occlusion is more than the average the contoured section in a short time has to be renewed. To secure a result that will better resist this attrition and force of occlusion, platinum has been used in combination with gold. There is undoubtedly a harder metal produced and greater resistance offered. My experience in its use, however, has not been altogether satisfactory, as in some cases I have been annoyed by the edges of the metal, at points where the force of occlusion has been severe, curling up and forming bur edges that have been very annoying to the tongue of the patient and requiring at intervals trimming and burnishing. Owing to the facts above mentioned, the method of constructing the artificially restored section with alloyed gold, secured by pins or posts and cement, apparently presented when it was introduced advantages over any style of operation performed with filling material. These pieces of gold, ordinarily designated "gold tips," demand less excavation of the dentin to secure foundation or attachment in teeth with vital pulps, and as a rule are less laborious and complicated, and tax less the vital energy of both pa-

tient and operator. Owing to the fact that the contoured section of the gold tip can be formed of alloyed gold, the extremest possible hardness can be imparted to it. In the construction of gold tips in cases of living pulps, small platinum pins are used in holes drilled about the pulp-chamber in diamond shape. Three pins should always be used, except in very small lower incisors, where the space will not permit more than two. The pins should be inserted and soldered in the gold plate one at a time, and the plate each time adjusted to the surface of the tooth. The first pin, if fitted tightly, can be soldered without investment. Each subsequent pin, as it is fitted, can also be soldered in like manner, if only an atom of solder is expertly used at each soldering. When this cannot very well be accomplished, the pins and plate must be invested. The ends of the pins should be allowed to extend beyond the gold cap the required length of the tip. The ends of the pins, when extended above the gold cap, will materially aid in maintaining the solder in position when fused, so as to furnish length and contour.

To give special length and contour, the cap is shaped with wax to the required form, and the wax enveloped with No. 60 to 120 gold foil; the light foil for short and the heavy for long tips. This foil, when the tip is invested and the wax washed out with boiling water, forms a matrix, into which solder can be melted. In case three pins are used it is seldom necessary to extend the plate beyond the incisive edge over on the palatal side of the tooth. In restoration of the occluding surface of bicuspid three pins are required. In that of upper and lower molars three or four pins. In pulpless incisors, cuspids and bicuspid one large pin extended into the crown and root-canal will furnish the required anchorage. Small globules of gold plate slightly flattened, or pieces of crystal gold gently packed around the protruding ends of the pins on the surface of the cap, will aid in giving the desired contour to an occluding surface in the soldering. In a case of extensive restoration, a piece of gold plate the form of the required occluding surface might be stamped up, fitted over the cap in proper position with wax, invested, the wax removed with boiling water, and the space occupied with the wax filled with solder.

To artificially restore the incisive edge of the teeth in the manner described I am aware that gold lacks the esthetic advantages of porcelain, but the properties of porcelain will permit it to qualify



only in a limited extent as an agent in this special class of operations. A much larger proportion of men seem to be affected with mechanical abrasion than women. The age at which operative procedure seems indicated is generally past middle life. The preservation of the usefulness of their teeth with them is much more than any other consideration. In most cases the shortness of the teeth renders them only slightly visible, and where a moustache is worn it usually obstructs the view of the gold.

One great advantage possessed by partial crown operations of gold over those of porcelain is that the edge of the base can to some extent be burnished against the enamel so as to form a water-tight joint after the tip or inlay is cemented. In a case of abrasion where decay exists on the approximal side of a tooth and extends to the incisive surface, the gold cap or matrix, when fitted to the incisive section, should be bent forward and adapted to the cavity. The approximal cavity of course must be so shaped that the adapted gold can be drawn from it in a downward direction approximating a right angle with the incisive edge.

Gold tips, when skillfully constructed and applied, cannot at a glance be detected from similar operations done with gold filling-materials. My experience in their practical use dates back about ten years, and they have proved to me in results all that I claim for them as a method in operative procedure. I do not wish to be understood as advocating the use of "gold tips" of the construction I have described to the entire exclusion of operations with gold filling-materials for all forms of mechanical abrasion. I do not consider their use is indicated when the occluding surface of the enamel is only partially abraded or pitted.—*Cosmos, Aug. 1900.*

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**HYPERTROPHIC GINGIVITIS: HISTOLOGICAL RESEARCHES.** By Dr. Luigo Arnone, Pisa, Italy. It is not rare in dentistry to find the gums of some patients affected by the disease known as hypertrophic gingivitis; but few practitioners have until now described this affection of the mucous membrane of the gums. Magitot describes this hypertrophy as simply a phenomenon of hypergenesis in the fundamental anatomical elements. On the other hand, Dubois observes that this hypertrophy is often accompanied by dental anomalies, especially in the position of the teeth, and expresses the opinion that hypertrophy is most often due to the

transformation of a fungoid state, owing to the diminution in the diameter of capillaries, by cicatrization, and fibrous organization of the fungoid body. On this point, however, I can not agree with Dubois.

Many are the causes of hypertrophy of the gums. It is found in patients with green tartar. Broken teeth and roots will produce local hypertrophy. It is also found accompanying anomalies in the position of teeth, especially in the incisor region (perhaps because the continual movement of the lips produces a slight, but constant mechanical irritation). Besides, in the irregular interstices of these teeth food and mucous secretions are apt to lodge, together with microorganisms, which rapidly develop; and this explains the nauseating emanations from the mouths of these patients.

It must also be admitted that a predisposition exists on the part of patients to hypertrophy, since the same causes will often produce contrary effects on two different individuals. For in some salivary calculus will produce, as before stated, hypertrophy, and to such an extent as to sometimes cover the teeth; whereas in others (the majority) it will produce the contrary effect, and cause atrophy and recession of the gums.

A hypertrophied gum will not always present the same appearance. It is generally of a dark-red color, almost approaching to purple; its consistency is always more pasty than the healthy gum, and at times is softer and semi-transparent. It is never smooth on the surface, but feels rather granular to the touch; is easily detached from the necks of the teeth, and bleeds very freely on the slightest provocation. It is seldom painful; indeed, the only troublesome features are the oft-returning bleedings and bad breath.

I began my researches with the preconceived idea that I should find neo-formations in these fungoid growths; whereas I found with Magitot, that in all and every form of atrophy or hypertrophy of the gums there is no histological difference between the healthy and diseased tissue; it is only an alteration in the relation between the different tissues. In order to get a clear idea, I have placed sections of normal gum tissue beside the pathological sections; these were collected from the dissecting rooms. A transverse section of the gum differs but little from a section of the skin in any other part of the body. In fact, we find the corneous, the pellucid, the Malpighian, and the submucous layer.

Observe a section of hypertrophied gum, hardened in alcohol and seen by low power. In this the alterations are: (1) weakening of the superficial layers; (2) loss of shape and irregular arrangement of the papillæ in the mucous layer; (3) dilatation of the blood-vessels, some of which open on the free edge of the labial aspect of the gum in the incisor region. If we cast our eyes now on an enlargement of 300 diameters of hypertrophied gum, we can see even better the weakening and thinning of the outer layers. One can see blood-globules coming out of the free edge of the gum, through an open blood-vessel, some of them forming a clot near the opening. The cells of the mucous layer are larger and longer than the normal ones, and their nucleus three or four times the original size. While section of normal gum with the same power shows distinctly the endothelium of blood-vessels, this will show the blood-vessels greatly distended, with their walls pressing against the Malpighian layer, the cells of which are flattened and compressed. These sections were stained with hematoxylin (Weigert), but others treated with other stains have invariably displayed the same arrangement, the same exaggerated production of the usual constituting elements.

The continuation of the blood-vessel onto the free edge of the gum explains the frequent small hemorrhages met with in such cases, which are so difficult to control or to stop quickly. The walls of the vessels not being protected by other tissues, tear and fray with the greatest ease; the vessels then disgorge themselves, become flaccid, and after a while are closed again by a slight clot. But an increase in the blood pressure, as in walking or lowering the head, or even in talking, forces out the clot and the bleeding commences again.

With regard to remedies I have tried every possible astringent, and even caustics, without result. Actual cautery does not answer; indeed, at times the growth has increased after such remedies, probably because canterization acts as an irritant. The only remedy I have found efficacious is a free excision of the spongy or softened portion of the gum, and after the surface has been left to bleed for a few minutes, to produce a fairly consistent eschar by actual cautery. The eschar will peel off in a day or two, leaving a healthy granulating surface beneath, which will take the appearance of the gum after ten or twelve days.

During this time it is well to advise the patient to use alkaline

solutions as mouth washes, so as to neutralize any acidity of the saliva, and to keep the mouth clean; also prescribe disinfecting mouth-washes three or four times a day; a solution of carbolic acid, 4 per cent, to be kept in the mouth for a few minutes.

Therefore on the strength of histological research, one may discard absolutely the idea that in hypertrophy of the gum, in the softening, in fungoid growths, there may be any neo-formations, even though a superficial examination and the microscopic aspect might lead one to suppose that these growths are a proliferation of the mucous membrane.—*L'Odontologia*.

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**SUBLINGUAL FIBROMA OF NURSLINGS (RIGA'S DISEASE; FEDE'S SUBLINGUAL PRODUCTION).** A great deal has been published of late in Italian medical journals concerning a small fibrous growth that occurs in infants, usually after eruption of the lower central incisors, and is situated at the frenum on the lower surface of the tongue. Judging from the number of cases reported this affection is rare; in fact, the Italian authorities assert that, so far as they know, these growths are practically never seen except in their own country. Even there they are said to be limited to the southern provinces, but very few cases having been observed in northern and middle Italy. Only two cases have been reported outside of Italy, and these were observed in France by Brun and by Duforenier in 1895.

The growth usually begins in the form of a whitish patch upon the lower surface of the tongue. Gradually this patch assumes the shape of a small, hard, fibrous button, pearly white in color, bloodless, sometimes depressed, sometimes umbilicated. It varies in size from that of a pea to that of a quarter-dollar; it is well circumscribed and rests upon the frenum by a broad base. The adjacent lymphatic glands are not enlarged, and the tumor is not subject to inflammatory changes.

Almost since the first cases were reported by Urbano Cardarelli, in 1857, there have been two theories concerning the nature of these growths. One group of observers believed that "Riga's disease" was an infectious process, accompanied by general symptoms and by gastroenteritis and gradually followed by a severe progressive cachexia of infectious origin which terminated fatally. The second group maintained that the disease was a purely local affection, a

new growth due to accidental causes. They admitted the occurrence of intestinal catarrh, of cachexia, and of a fatal termination, but asserted that this train of events was due simply to the ordinary causes of gastroenteritis and of marasmus. This latter view has gained the ascendant in consequence of the masterful work of Francesco Fede, of Naples, and is now indorsed by most pediatric authorities.

It seems strange that the occurrence of such a simple fibrous growth should be limited to Italy when there is no apparent reason why this should be so, unless we choose to hide our ignorance concerning the etiology of the growth behind the convenient screens of "climate" and "race." We have been unable to find any cases reported in the United States, but we confess that we have been greatly hampered in our bibliographical work by the multiplicity of synonyms with which the name of this growth is burdened. One of the recent writers on the subject, Callari, attempts to account for the endemic nature of the growth by comparing it to keloid in the African race and to the congenital pigmentation in the Japanese. It is possible that when the attention of American physicians has been called to these growths cases observed in this country will appear. Even if race is concerned in the etiology of affection, there is no reason why these tumors should not be observed in our immigrants from southern Italy.—*Ed. in N. Y. Med. Jour.*

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**FLEXIBLE STRIPS.** By Mary E. Blake, D.D.S., Springfield, Mass. The manifold advantages of the carefully adjusted matrix commends itself ever daily anew. There are many excellent matrices in the market, and several band devices, more or less universal in application, while those made and fitted for each individual case, and wedged into correct position, are of real worth. Their use, however, is confined almost exclusively to the bicuspid and molar regions, and there is no denying the fact that they become more and more advantageous with each tooth posteriorly, where the problem of reaching the highest or lowest point of the cavity, the vulnerable cervical margin, becomes a test not only of one's skill, but patience as well. Of course the cavities posterior to the cuspid teeth are usually reached from the coronal surface, or cutting edge, the matrix forms the missing wall, and one proceeds to the filling with ease; but in the anterior teeth the conditions are different, the cav-

ities are almost invariably of mesial or distal aspect, and the use of a fixed matrix is both impracticable and undesirable.

The writer has derived an immense amount of satisfaction from the use of flexible metal strips as an adjunct to the insertion of cement fillings in the twelve anterior teeth, and each day is impressed with their value. The usual soft, half-hearted, discouraged, easily-creased and twisted German silver strip of commerce is not meant, but one of steel, fine of temper, well planished, smooth of edge, and full of spirit and spring in length, stiff and rigid from side to side, as a whalebone is both flexible and rigid at the same time. Such strips can be procured and should be about two inches in length, one-quarter inch wide and No. 42 B. and S. gauge. These should be kept clean and bright; this point is of prime importance. Now as to their use.

Everything being ready, except the actual mixing of the cement, pass the strip between the teeth, letting the ends remain loose, or tucking them around adjacent teeth. Often I request my small people to hold them back, allowing them to watch the procedure in the glass side of my table. The filling material, rolled into a tiny cone, is inserted into the cavity with suitable instruments, pressed well against the strip until the desired amount is used. Then bend the strip around the tooth, again and again, drawing the cement into and not out of the cavity, form the contour carefully, pass up to the cervical margin, leaving it smooth and well shaped, then withdraw it, allowing the cement to harden thoroughly.

When the orifice to the cavity is deepest on the lingual surface, hold the strip firmly on the labial side, press the cement into place from underneath, using a ball burnisher, securing concave form at once—indeed “the stitch in time saves nine,” and advantage should be taken of every second of working time while the material remains plastic. Should it be necessary to insert the cement of rather soft consistency, it is well to oil the strip very slightly, or dust over it the powder of oxyphosphate mixture, while in gutta-percha fillings the strip may be slightly warmed, or not.—*Brief, Aug 1900.*

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NEUROTIC AFFECTIONS OF INTERSTITIAL GINGIVITIS. By J. G. Kiernan, M.D., Chicago. Read before Section on Stomatology, Am. Med. Assn., June 5, 1900. The chief function of the nervous system, beside its special function, is that of regulating

growth and repair. This function, as Marinesco points out, resides even in the neuron or nerve unit. While this function of regulating growth and repair is often connected with control of the vasomotor system, still as Collins remarks, there are trophoneuroses in which there are no appreciable vasomotor disturbances, and there are any amount of vasomotor disturbances which are in no sense connected with disturbances of nutrition. The nerves regulating growth and repair are called trophic nerves, and the conditions produced by anomalies of their action are, as already stated, called trophoneuroses. It was in the domain of bone growth that anomalies of the function of the trophic nerves were first observed. Brown-Séquard pointed out certain anomalies in the joints in locomotor ataxics; later similar disturbances were observed in the jaws of patients with this disease. Another great neurosis, parietic dementia, presented similar trophic disturbances, as I pointed out twenty-two years ago. Among these trophoneuroses was one characterized by looseness and falling out of the teeth, alveolar resorption, gingival ulceration and perforation, with at times maxillary necrosis. This condition had long been recognized by alienists and neurologists as causing that fall of the teeth which occurs in parietic dementia and locomotor ataxia. As Talbot remarks, this function of the trophic nerves, however, received but little attention from dentists, albeit its influence has been recognized in dental pathology, in connection with the great neuroses in which gum disorder occurs, followed by loosening of the teeth. Cases illustrative of this condition have lately been described. The case of Dr. Chagnon was that of a man aged 34, who, about ten years previous to coming under his care, had contracted syphilis. Two years later he married and had healthy children. In June, 1895, he was admitted to an insane hospital under intense maniacal excitement, which subsided to give place to the usual symptoms of parietic dementia. The psychosis followed its course without any remarkable incident until about September, 1897. At this time Dr. Chagnon found that the two incisors, the cuspid, two premolars and the first molar of the left upper maxillary were very loose. The teeth on being picked out were absolutely sound. The ulceration which affected the surface of the alveoli following the loss of the teeth did not heal. About the middle of September a sequestrum, in which the work of alveolar resorption was not much advanced, became detached. The palate

roof forming the anterior border of the maxillary sinus was part of the sequestrum. Two months later the ulceration had healed. In June, 1899, all the teeth in the lower jaw were sound. The two premolars and the right cuspid of the upper jaw were decayed. The second and third left molars, as well as the first right molar, were loose but perfectly sound. There existed no alveolar pyorrhea; neither did any trace of ulceration appear, except a small opening which would not admit a probe.

Conditions like this may occur not only from constitutional neuroses, but from disturbances of the cranial and spinal nerves as well. They are frequently noticed after injuries to these nerves, but they may also occur as a consequence of the great functional neuroses, like epilepsy, neurasthenia and hysteria. Their part in dental pathology is two-fold; they may cause an interstitial gingivitis, which pursues its course without bacterial infection, or they may so weaken the strength of the jaws and gums as to make these an excellent culture-medium for pyogenic microbes. In dealing, therefore, with the question of treatment, the trophic factor should be taken into consideration, more especially as the structures involved, since they are of a transitory type, are peculiarly liable to its operation.—*Jour. A. M. A., Aug. 18, 1900.*

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**PULP MUMMIFICATION.** By F. S. Cloud, D.D.S., New York. For the last sixteen months I have been using the same formula for mummifying paste with entire satisfaction—although my methods of procedure differ considerably from those laid down by Dr. Soderberg. I think you will agree that not every operator can remove the pulp from all and any pulp-chambers, but of course we meet one occasionally who claims to be able to do so. I can hardly believe that Dr. Soderberg would have us leave the contents of root-canals untouched and proceed to fill, either by using mummifying paste or any agent that might be discovered.

My method is as follows, and after using it in many cases where other methods had failed I may pronounce it a success. After devitalization, using the formula below for nerve paste—

Arsenious acid,

Cocain hydrochlorate, aa. gr. x.

Carbolic acid q. s. to make a paste.

I open up the pulp-chamber, thoroughly removing all and every



particle of the pulp possible, by use of barbed extractors, etc.—my aim being first to remove every vestige of the pulp possible; second, to know that the pulp is totally devitalized. I then check the hemorrhage, if any, dry the chamber as well as possible, wipe out with some one of the essential oils or Black's 1-2-3, introduce the mummifying paste at the consistency of thick cream, and insert gutta-percha points previously selected to approximate length and diameter of pulp canals; then wipe away all surplus paste and cap canals with cement, after which the permanent filling is introduced. If the mummifying paste becomes hard and brittle, soften with a few drops of glycerin.

I realize that this method might meet with success even without the use of mummifying paste, but if there is one fiber of the pulp left in the canal I prefer to use the paste. I am of the opinion that there can be no shrinking or shriveling in cases treated as above, because, first, we remove all or most of the fibrous matter; and second, we do not fill the entire chamber with mummifying paste, but simply use it to quiet a few fibers that cannot be removed. A tooth can be opened in twenty minutes should subsequent trouble occur. I think we will all agree that a pulp-chamber should be filled its entire length by some substance that will not disintegrate, and is compatible with tooth structure. I use mummifying paste only when I am in doubt as to removal of entire pulp.—*Brief, Aug. 1900.*

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**ALCOHOL AS A DISINFECTANT.** It has been a matter of much discussion whether alcohol is a bactericidal agent, and if it be, in what way it exerts its activity. When alcohol was first proposed for disinfection of the hands it was thought to be effective by acting as a solvent of fat, and thus preparing the way for the necessary intimate contact between the antiseptic solution and the epidermis. Later bactericidal activity was ascribed to alcohol, and this was thought to depend principally on its dehydrating property. There are some observers, however, who believe that alcohol possesses doubtful, if any, antiseptic qualities. For the purpose of reaching an independent conclusion on this subject, Salzwedel and Eisner undertook an experimental investigation, as a result of which it was found that a number of alcoholic solutions examined exhibited varying degrees of disinfectant activity, as compared with other well-known antiseptics, such as mercuric chlorid, carbolic acid,

lysol, sapokresol. Silk threads, with dried bacteria, were employed as test-objects, the conditions encountered in actual practice being duplicated as nearly as possible.

It was shown that alcohol is with most certainty destructive to staphylococci contained in pus dried on threads, when employed in aqueous solution with a specific gravity of .902 at a temperature of 19 C., that is, about 55 per cent (by weight) spirit. The disinfectant activity of this solution was not quite equal to that of one to one thousand mercuric-chlorid solution, but on the other hand it was not less efficient than 3 per cent solution of carbolic acid. Lysol and sapokresol in 1 per cent solution, as well as lysoform up to 4 per cent, were always less active than mercuric chlorid, alcohol, and carbolic acid. It was found that alkalinized spirit was more effective than ordinary alcohol in its action on dry threads, while the addition of mercuric chlorid or carbolic acid had no distinct effect in increasing the disinfectant activity. A generous coating of fat on the threads seemed to favor, while a thin layer rather retarded the action of the disinfectant. The application of gentle heat—30 C. or below—was thought to facilitate the disinfectant power. The time required for the manifestation of this effect varied with the period of desiccation to which the threads were exposed; the bacteria in fresh pus, for instance, being destroyed by mercuric chlorid, alcohol and carbolic acid in five or six, or even in three minutes, while if the threads were exposed after an interval of weeks or months, disinfection was, as a rule, not accomplished in less than from eighteen to twenty-four minutes. The results were equally bad when the threads were prepared from pus that had itself stood for a long time. These effects are attributed to inspissation of the medium containing the bacteria, retarding access of the disinfecting agents. Similar results were obtained with bouillon preparations made in the same way. Bacteria dried upon threads and placed for a long time in pure alcohol, and in some instances kept besides in the thermostat or the autoclave, retained their power of multiplication; but bacteria in a moist state, on the other hand, were destroyed in a short time by absolute, cold alcohol. This difference in effect is attributed to the desiccating and coagulating action of alcohol.

It appeared that the spirit capable of penetrating the bacteria with destructive effect should contain from 50 to 55 per cent of alco-

hol by weight, although weaker solutions are not without a deleterious influence on the bacteria. The development of staphylococci was inhibited by the addition of 70 per cent of alcohol by volume to the nutritive medium, the phenomenon being analogous to the process of alcoholic fermentation, where the yeast is destroyed when the percentage of alcohol reaches a definite figure. It was found that the addition of an acid, such as boric, acetic, or hydrochloric to the alcoholic solution augmented its disinfectant activity, but it was then discovered that the reaction of the threads was neutral or alkaline.

From the experiments outlined it is concluded that in addition to its desiccating action, alcohol exerts an especial toxic influence on bacteria. Although this toxic effect is much less than that of mercuric chlorid and carbolic acid, properly applied, it is, with regard to its disinfectant power, comparable with the latter two, occupying an intermediate position between them.—*Ed. Jour. A. M. A.*

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**TREATMENT OF FRACTURED TEETH.** By F. G. Gregory, D.D.S., Newark, N. J. Read before the Central Dental Association of Northern New Jersey, April 16, 1900. It has been the experience of the writer that the teeth most frequently fractured are the incisors and bicuspid of the upper jaw. These usually have a history of having carried large approximal fillings, or of having supported artificial crowns. The bicuspid teeth generally become fractured by accidental occlusion upon some hard substance, such as a splinter of bone, lead bullet, etc., and not infrequently the palatal portion of the crown gives way, involving the inner cusp, and extending sometimes a distance well under the alveolar ridge. To prove that this is a very common condition of affairs, one need but examine the mouths of a number of adults to find that at least fifteen or twenty per cent of them have lost one or more cusps, and the characteristics of these teeth have been materially changed in the effort to preserve the remaining cusp; no effort in many instances having been made to build up a cusp mechanically to restore the masticating surface lost.

The incisor teeth to succumb are the frail roots of the laterals carrying metallic posts, supporting artificial crowns; especially those crowns not reinforced by a continuous band. It is my firm belief that these teeth (lateral incisors and bicuspid), so often the first to

give way under a carious influence, should be the especial care of every operator, in the hope that fewer dentures shall be minus these desirable members, and gold crowns be denied the embrace now so commonly indulged.

*Old Methods.* When a patient presented with the condition such as outlined, it was the accepted practice to make a gold shell, so fitted as to draw the fractured parts together, or fit a gold band around the tooth, cement in position, dismiss the patient with the parting advice that "the best possible has been done for the tooth and we hope it will prove serviceable." Should the case be at all complicated, the detached portion was extracted and the operator's hands washed, while his conscience not being so easily appeased, disturbed him for many an hour for having sacrificed part of the human anatomy having a just claim for continued usefulness.

While many cases so treated have given a good account of themselves, it is not at all infrequent to find the soft tissues inflamed and a suppurative condition always present. This is easily explained by saying it was impossible to draw the parts together, thereby preventing the irritation set up by the sharp edges of the parts extending beyond the ridge of alveolar process. The whole procedure was looked upon as a mechanical operation, and not thought of more than wherein a mechanical principle was involved.

A satisfactory solution has been reached. Let me relate the history of the particular case resulting in a device so simple and efficacious.—Miss —, while away from home, having some slight disturbance, presented herself at the office of Dr. — for advice and treatment, the right superior second bicuspid having a filling in the distal approximal surface somewhat loosened. This was removed and the cavity washed with a mild antiseptic, after which an oxyphosphate filling was inserted. On returning home, the young lady having been under my care for many years, she requested an examination of her mouth and teeth, not only to discover possible cavities, but to locate the source of a disagreeable taste of which she was conscious. Carefully subjecting each tooth to thorough examination there was found to be a slight discharge when pressure was exerted upon the soft tissues adjoining the bicuspids on the superior right side, no apparent cause being exhibited. Thinking the root canal might not have been properly treated, the filling was removed, and in attempting to make a satisfactory exploration with a broach,

to my surprise there was no limit to which that broach would extend, demonstrating a longitudinal fracture involving the entire length of the root. What to do I knew not. The cusps were in proper relation, not having separated perceptibly. How to get the deep-seated portions in juxtaposition was a problem. Of necessity something must be done to retain the tooth, and that quickly, owing to the forced return of the student. The following plan suggesting, it was deemed wise to make the experiment. With a long slender drill the crown was perforated from the buccal surface, a second perforation being made at the neck of the tooth, just under the free margin of the gum, and a third perforation made about a quarter of an inch above the gum line; gold screws the exact diameter of the drilling instrument were made and introduced, after having tapped the perforation so as to engage the screw; the length of the screws under the gum was first determined and all the screws introduced evenly and the parts firmly bound together; after trimming and polishing the exposed ends of the screws there was no visible evidence of the tooth having been operated on, save what appeared to be small fillings on the buccal and lingual surfaces of the crown. The crown was refilled, and after a local application to act as counter-irritant the patient was dismissed. A lapse of four months finds the parts in a healthy condition and the discharge completely eradicated. Encouraged by such flattering success with my first and most difficult case, all similar conditions have been similarly treated and with equal success.

There is a vital consideration which, in my practice, has not been demonstrated as yet, but will be established I have no doubt. Teeth having living pulps frequently sustain injuries, resulting in the loss of a portion of the crown. Where the violence is not great enough to cause the death of the pulp, it is not beyond reasonable expectation, if the fracture be a simple one and the lost portion recovered, they could be held in their proper relation, using this method until union be established by a process similar to that of the other osseous tissues.—*Items*, Aug. 1900.

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SULFURIC ACID FOR ALVEOLAR HEMORRHAGE.—In a case where other well-known methods had failed and the patient was becoming alarmingly weak from loss of blood, sulfuric acid dropped in the socket, after washing the mouth out with warm water, caused the flow to cease within three minutes, and there was no subsequent return.—R. W. Turner, in *Items*.

## Letters.

### NEW YORK LETTER.

NEW YORK, Sept. 19, 1900.

*To the Editor of The Digest,*

MR. EDITOR:—Dentally and incidentally New York is absolutely barren of anything which would excite interest.

It is said that there are men who do not have their door plates brightened up for about four months during the year, so as to give the impression that they are out of town, but it has been found in many cases that by a little persistent ringing of the bell an entrance could be effected. We have seen only one dentist's house boarded up, according to the fad of New York's four hundred, and we think very few have the moral courage to forego the possibility of a chance patient.

Dr. St. George Elliott, well known in most of the large cities of the world, has leased the office left vacant by the sudden death of Dr. B. J. Perry. Dr. Elliott states that he has found by the last six years' experience in New York City that a dental practice cannot be purchased to profit.

Dr. J. W. Clowes died Sept. 9. Another of our veterans has fallen at 79 years, over 50 of it in the actual practice of dentistry. No one in our profession has been much better known by a connection with emphasized methods of practice. He early antagonized prominent practitioners by his advocacy of amalgam, for the feeling at that time ran high against it, yet the material has survived and to-day is second only to gold as a filling material. No practitioner ever did more to make it respectable, and this was accomplished by his conscientiousness in the handling of it. Only those who have seen specimens of his untiring industry in this line can have any idea of his work. He had the courage of his convictions and adhered firmly to same. His patronage has been large, and principally among well-to-do people who thoroughly appreciated his services. His most notable characteristic was his geniality.

Dr. Clowes began the study of dentistry in 1838 in the office of Dr. J. Smith Dodge, his brother-in-law. The following year he entered the Baltimore College of Dental Surgery, and was the last surviving member of the first class graduated by that institution.

In 1842 he opened an office in New London, Conn., and remained there until he was, as he used to say, "starved out," when he went to Columbus, Ga., which gave an excellent practice for several years. In 1850, like many others, even to this day, he came to New York, and here is where he battled with the amalgam haters. When Dr. Atkinson came to New York Dr. Clowes was from the start one of his most enthusiastic admirers, and he even took an office in his house so that he might become more familiar with Atkinson's advanced ideas. From this time on he made a larger use



of gold. He was extremely careful in everything he touched. His office in later years was magnificently fitted up, the instrument cases alone costing \$1,000.

Dr. Clowes leaves a wife and daughter, and a property that will suffice for all their material needs. The accompanying photograph was taken some ten years ago, yet he had not changed much at the time of his death.

Dr. Geo. Phelps of Columbus, Ga., to whom we referred in our last letter as being stricken with paralysis, has made a very rapid partial recovery. We received a call from him this month and

put on one of his molars an amalgam crown of good fellowship. He has gone to the Berkshire Hills for a while, hoping to entirely recover. May it be so.

A curious coincidence occurred while he was here. We have stated above that the late Dr. Clowes practiced at one time in Columbus, Ga. Dr. Phelps of course knew many of his patients, and so at every visit to New York he called on our friend. On Wednesday, Sept. 12, Dr. Phelps went as usual to the house, and on presenting his card a gentleman who opened the door (evidently the undertaker) pointed out to the street and said: "Dr. Clowes is in that hearse, and the ceremonies are just over." As it happened, Dr. Phelps was the only dentist at the funeral, and he could hardly be said to have attended. This is partly accounted for by the large number of practitioners away from the city at this time of the year.

Dr. W. W. Walker has been sued by the Crown Co. Truly, in this day and age no man is safe. He is just home from the Dental Congress at Paris, and remarks that the British dentists are now beginning to appreciate more and more Dr. Williams and his ability.

Dr. S. G. Perry is home again, as full of life as one of the speckled trout which he has been catching and eating this summer, so we shall look for gray matter full of poetry and wit as formerly. He is the acknowledged poet laureate of New York dentists; Kingsley the Chauncey Depew; Northrup the diplomat, and Walker our Mark Hanna.

We are thinking—How about our fellow dentists of Galveston? Are they in need? We remembered Chicago in her distress, and dentists are not usually behindhand at such times. There is no telling how soon any of us may be down in the mouth. There are lots of good fellows in Texas, and perhaps we can help them tide over. Let's find out anyhow. Cordially, NEW YORK.

### BALTIMORE LETTER.

*Dear Digest:*

BALTIMORE, MD., Sept. 18, 1900.

I am sorry you don't know the difference between "libel" and "label;" one is false, the other is true; one is intended to make an erroneous impression, the other is to give warning as to where, in propriety, the thing labeled is to be placed. That was *label* your blue pencil struck; not that I care very much, for, after all, it would go rather hard if we were all labeled.



After a most trying summer, the tail end of the Texas storm has brought us relief, and work has begun with a will. Our men are at home, some from across the water, others from rustic quiet which is to be had near at hand, and not a few from that greatest of all resorts, Atlantic City, the like of which cannot be found in the world for kaleidoscopic experiences and scenes. All look fresh and full of vigor—a pleasant word, some novel experience to recount, a fish this long\_\_\_\_\_!

"Oh, but she was a beauty, and rich! Say, I don't expect to practice dentistry always!" How it cheers and brightens one, just to hear these outbursts of new life—a life which would be a stranger to us if we had to work always without a chance for an outing. But work we must, for they say this will be a busy winter professionally. Big things are being planned by the officers of the State Society. Can't you drum up some of your western men? We'll treat them right, and they'll be glad they came down to the land of the bivalve and the crawler. The union meeting takes place in Baltimore this year; why wouldn't it be a good thing to try the steamboat experiment? I recall a meeting of the Southern Association which was held in Baltimore about '82 or '83, when an excursion down the bay was the most popular event of the meeting.

One thing is certainly manifest to a casual observer, and that is that many of the rough places have been smoothed away by the good, healthy growth of professional activity in our state. More sympathy, fairer professional treatment, and better feeling generally are the outcome of our rubbing together at the meetings. Then, so many of our younger men are doing their share—why, when we went to Richmond last spring we almost chartered a boat, and we had a good time—at least going down. It seemed a little chilly after we got there; I think we were all agreed on that, and don't you think it argues well that we can all agree on a point? We are positively getting amicable.

One of our brightest and most active society workers, Dr. C. J. Grieves, has had hard luck this year. The bugs got hold of his Pyers patches, but bless you, he was too tough for them; and the last we heard he was resting and fattening down by the sea. Too bad that the Doctor had to lose so much time from his office, and there was the suffering and distress to his friends. But then, we have heard the expression—"suffer and be strong;" and surely, now that the

danger is past, is it not pleasant to know that you have so many friends? I congratulate the Doctor, and wish him a like triumph o'er all the enemies of mankind.

There are few who have been acquainted with the sorrowful homecoming of one of our best loved members but have been deeply affected by the pathetic circumstances attending it. Dr. C. C. Harris, who had been absent in Europe for two months, returned to his home to find that his wife had died two weeks before his arrival. His family thought it best not to distress him with the facts when he was so far from comforting friends; and after all, this seemed a wise course, as what boat could sail to suit one hurrying on to such affliction? Mrs. Harris was without children, and the constant and almost only companion of the Doctor. We cannot measure his grief; let us try to help him bear it.

It seems that some of our friends did not get as much out of the World's Dental Congress as they expected, that is, those who did not speak French. They could not keep up with the plans and places of meeting at first, and even when that difficulty was overcome they invariably found the congress listening to some essay in German, French or Italian.

What's to hinder the dentist from studying a language or two? I remember a Baltimore physician who became late in life the master of several tongues, and it was his common boast that he acquired one new language a year. Our younger men, who still have time on their hands, should be doing something constantly to acquire culture, hence the hint.

Say, that symposium on dental education at the American Medical Association knocks me silly. I would like to discuss it (them), but it's too late; then, too, I would like to solve that dissolved theorem in the *Indiana Journal*—next time possibly. Meanwhile be good.

Cordially,

ORIOLE.

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ARTIFICIAL SPONGES are being made in Germany by Dr. G. Pum of Graz. His experiments are based upon the action of zinc chlorid solution upon pure cellulose, says *The Trade Journal's Review*. The resultant product swells enormously with water, but turns to a horn-like substance on drying. In order to retain for the product the property for also absorbing water after drying, alkali-haloids are employed in treating the cellulose with the zinc chlorid. The mass after manipulation and molding is said to take the place of sponge in all its uses. It is claimed that a real rubber substitute may come from this field.

# The Dental Digest.

PUBLISHED THE TWENTY-EIGHTH DAY OF EVERY MONTH

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Where All Communications Should be Addressed.

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## Editorial.

### PROTECTIVE ASSOCIATION MEMBERSHIP CERTIFICATES.

When the Protective Association was first organized it was intended to issue handsomely engraved membership certificates, which should be not only an ornament to any dentist's office, but which would also show agents of various patent shark companies that the owner of said certificate did not care to bother with them. Unfortunately for our plans, however, the receipts from membership fees during the first eleven years were so small, and the expenditures for litigation, etc., so large, that the Association never had any money in the treasury which could be devoted to the purpose above outlined.

When the Association was reorganized last fall, however, an abundance of capital was provided, and it has been the intention of the management ever since then to have the certificates engrossed and issued. The Crown Co. have kept the chairman and attorneys of the Association so busy that it has been impossible to do one thing which was not absolutely necessary, but during the summer months when the courts were not in session time has been found for the work. The certificates are now in course of preparation, and we hope to issue them in a month or six weeks. Members who are in good standing, that is, who have paid \$20 to cover the membership fee and assessment, may therefore look for their certificates at that time.

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### TEXAS DENTISTS IN NEED.

Just at time of going to press we received a telegram from Dr. B. Holly Smith of Baltimore, which read as follows: "Make an appeal for Galveston dentists. I have received some most pathetic letters."

Probably every one of our readers has seen the accounts of the

awful cyclone and tidal wave which devastated several towns in Texas recently. Our professional brethren must have suffered with the rest, and as even those who saved their lives in the wrecked cities generally lost most of their perishable possessions, it can readily be understood how helpless those dentists must be without the tools of their craft.

Reports of floods in other parts of the unfortunate state are rife at the present time, which means additional suffering and loss of life, all of which will fall upon the dentists as well as other residents. We would therefore urge all our readers to make such contribution as lies within their power. Funds have been started all over the country to assist the Texas sufferers generally, but as many of our readers might naturally wish their contributions to be applied directly to the relief of their suffering fellow-practitioners, we shall be very glad to have any or all contributions sent direct to this office, when they will be forwarded immediately to the proper point for distribution, and we will see that only the dentists are benefited thereby. Such disasters may fall upon any community at most unexpected times, and as we hope for relief in our hour of affliction let us now cheerfully extend aid when it lies within our power to do so.

### CROWN COMPANY BRINGS MORE SUITS IN NEW YORK.

In our last issue we stated that the suits brought by the Crown Co. in Boston last fall had been recently dismissed by the court. We reminded our readers that they must not think from this occurrence the fight was over, as other suits were pending, and we believed the Crown Co. would push cases in the east and especially in New York.

Since last writing they have brought suits against the following practitioners of New York City: H. Albert, Edward H. Allen, Ralph E. Askin, M. A. & J. M. Carman, Emanuel Draf, A. K. Hussey, J. H. Meyer, G. H. Modeman, A. Stubenrauch, Wm. H. Walker, W. W. Walker, John Wesboy, W. De C. White. A few of the above are members, and the Protective Association has already taken charge of their cases. We do not know definitely what action the non-members have taken, but understand that some settlements have been made, and that the Crown Co. have obtained

judgment against others. There may be and probably are other suits, but these are all which have come to our notice up to the present.

The methods adopted by the Crown Co. are very similar to those of twelve years ago, at the beginning of the Protective Association work. At that time they brought a large number of suits against members in different parts of the country, but when the Association entered defense and attempted to force a trial, the Crown Co. had the suits dismissed and paid the costs, keeping up this Aguinaldo style of warfare until New York was reached.

Twelve years ago, however, a decision either way would have had greater influence than in the present suits. Then the cases all came before and were decided by the federal courts. Now all the suits will come before a jury of twelve men. That is, each individual sued will have a separate trial, and the decision in one case will have very little to do with the next one.

As before stated, the Association is taking care of all its members, and is filing appearances, furnishing counsel, etc. without expense or trouble to those sued. Although we have cautioned the membership before on these points, we would again repeat that under no circumstances should any self-respecting member of our organization settle with or make any arrangement whatever with the Crown Co. The courts are not yet opened for the fall term, but we believe this starts in a week or two, and all cases will then come up in regular order.

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## Notices.

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### WEST VIRGINIA DENTAL ASSOCIATION.

The annual meeting of this society was held Aug. 30-31, 1900, at Wheeling, and the following officers were chosen: Pres., G. M. McNeeley; V. P., J. M. McVore; Sec., W. B. McKee; Treas., W. McKinley.

### MASSACHUSETTS BOARD OF REGISTRATION IN DENTISTRY.

A meeting of this organization for examination of candidates will be held Nov. 14, 1900, at Boston. Applications must be filed with the secretary before Nov. 7. Application blanks and any further information desired may be obtained from G. E. Mitchell, Sec., Haverhill, Mass

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### AMERICAN DENTAL SOCIETY OF EUROPE.

At the twenty-seventh annual meeting of this association, held in Paris, Aug. 7, 1900, the following officers were elected for the ensuing year: Pres<sup>2</sup>,

W. Mitchell, London; V. P., S. S. Macfarlane, Frankfort-on-Main; Treas., L. J. Mitchell, London; Sec., W. E. Royce, Tunbridge Wells.

#### NORTHERN INDIANA-SOUTHWESTERN MICHIGAN SOCIETIES.

The joint convention of these two organizations was held at St. Joe, Mich., September, 1900, and the following officers were elected: Southwestern Michigan Society—Pres., N. E. Hopper; V. P., E. A. Honey; Sec., C. Johnson; Treas., C. E. Burchfield. The next session will be held in Battle Creek in April. Northern Indiana Society—Pres., W. O. Vallette; V. P., J. R. Pagin; Sec. and Treas., M. A. Payne. The next session will be held in Goshen.

#### MINNESOTA STATE DENTAL ASSOCIATION.

The annual meeting of this organization was held Sept. 4-6, 1900, and the following officers were elected: Pres., F. H. Orton; V. P., J. O. Wells; Sec., J. S. Todd; Treas., H. M. Reid; Master of Clinics, S. R. Holden; for appointment on the state examining board, F. H. Orton and J. E. Weirick. The next meeting will be held in Duluth. The session just closed was in all respects the most successful ever convened, and sixty-two new members were admitted.

#### LATEST DENTAL PATENTS.

- 654,869. Dental engine, F. H. Berry, Milwaukee, Wis.
- 655,938. Dental appliance, D. O. M. LeCron, St. Louis, Mo.
- 656,124. Dental mallet or plugger, U. G. Kennison, Aberdeen, Wash.
- 656,300. Dental root-canal drier, D. Perry, St. Paul, Minn.
- 656,556. Dental cabinet, C. H. Lind, assignor to A. M. McCarty and others, Canton, Ohio.
- 657,002. Dental impression cup, H. D. Osgood, Concord, Mass.
- 657,199. Dental electric lamp, B. E. Lawton, Providence, R. I.
- 657,360. Dental chair, F. Ritter, Rochester, N. Y.
- 658,179. Rubber-dam clamp, J. W. Ivory, Philadelphia.

### News Summary.

J. GASKELL, a dentist at Lockport, N. Y., died Aug. 28, 1900.

FRANK D BURLESON, a dentist at Pomona, Cal., 83 years old, died Aug. 18, 1900.

A. W. BUCKLAND, 56 years old, a dentist at Woonsocket, R. I., died Aug. 24, 1900.

WM. HORSEFIELD, a dentist at Manhattan, N. Y., formerly of Flushing, died Sept. 8, 1900.

WM. H. LAW, 47 years old, a dentist at Hazardville, Conn., formerly of Hartford, died Sept. 1, 1900.

E. F. WILSON, a dentist at Montclair, N. J., formerly of Rochester, N. Y., died Sept. 17, 1900, aged 81 years.

D. W. KENNEDY, a dentist at Troy, N. Y., formerly of Trenton, N. J., died Sept. 3, 1900.

REUBEN SCHWARTZ, 58 years of age, a dentist at Lebanon, Pa., died of dropey Sept. 18, 1900.

ARTHUR E. WALES, 35 years old, a dentist at Rocky Hill, Conn., formerly at New Britain, died Sept. 14, 1900.

J. C. HOUSE, 68 years of age, died in Lowville, N. Y., Aug. 28, 1900. He was the inventor of the asbestos casket.

JULIUS ROOT, one of the oldest dentists at Elmira, N. Y., died suddenly Sept. 14, 1900, from a stroke of paralysis.

JOHN L. GROVE, a dentist at Liberty, Ind., died suddenly of heart failure Sept. 16, 1900. He was a veteran of the Civil War.

FITTING FIGHT.—If a dentist and a manicure should come to blows could it not be properly said they went at it "tooth and nail?"

V. MCALPIN, the oldest dentist in Butler, Pa., 70 years of age, died Sept. 1, 1900, from paralysis. He left six children, four of whom are dentists.

CHLOROFORM PROVES FATAL.—A well-known man of Waverly, Ohio, 56 years old, died Aug. 25, 1900, while under the influence of chloroform given for tooth extraction.

FALSETTO.—It is asserted by a newspaper correspondent, whose veracity we will not vouch for, that a vocalist who purchased a complete set of teeth began to sing "False-set-O!" soon after.

JOHN D. HUNTINGTON, the oldest dentist in Syracuse, N. Y., 78 years of age, died Sept. 16, 1900, after a long illness. He was a prominent prohibitionist and well known in public affairs.

SAGINAW VALLEY DENTAL ASSOCIATION held its annual election of officers at Bay City, Mich., Sept. 1. They are: Pres., M. T. Watson; V. P., J. A. White; Sec., C. F. Porter; Treas., E. T. Loeffler.

MANILA DENTAL SOCIETY.—A dental society was organized Feb. 4, 1900, in the Philippine Islands. It meets twice each month, and all legal practitioners in the islands are eligible to membership.

MIRRORS SPOT AND BLUR because they are placed where a strong light falls directly on them. All mirrors should be so placed that the light shall come to them from the sides.—*Sept. Ladies' Home Journal*.

CHAS. G. VON SUESSMILCH, a dentist at Duluth, Minn., was adjudged insane Sept. 14, 1900, and sent to the asylum at Fergus Falls. While his case is serious there is a chance that he may in time regain his faculties.

DENTIST RUN OUT OF TOWN.—Dr. Spring, a dentist at Collinsville, Conn., left town Sept. 8, 1900. It was claimed that he had made trouble between man and wife where he boarded, and residents threatened to tar and feather or lynch him if he did not leave.

ISRAEL COOK, a dentist at San Jose, Cal., was adjudged insane Aug. 15, 1900, and committed to the care of his friends. He owes his unfortunate

condition to the habit of using cocain and morphin, which were first administered by a physician to relieve asthma.

**GOLF A DISEASE.**—Farmer Hornbeak: What's your city nephew's business?

Farmer Gapp: Why, he plays golf most of the time.

Farmer Hornbeak: Huh! That ain't a business—it's a disease!—*Harper's Bazar*.

**INDIANAPOLIS DENTAL CLUB** was formed Sept. 18, 1900, and the following officers were elected: Pres., M. Wells; V. P., H. D. Weller; Sec. and Treas., S. H. Creighton; Ex. Com., J. E. Cravens, Chairman; H. C. Kahlo, J. Q. Byram.

**ACETIC ACID; GERMICIDE.**—The investigations of Drs. Abbott and McCormick of the Johns Hopkins University show that a solution containing 7 per cent of acetic acid is more effective as a germicide than bichlorid of mercury.—*Items*.

**LASTING ANESTHESIA** can be produced by spraying ethyl chlorid over a surface previously moistened with a concentrated watery solution of cocain. Cocainized ethyl chlorid has been employed for opening abscesses, etc.—Bardet, *Med. Rec.*

**FAITH-CURE FAD.**—It is stated in the *Medical Sentinel* that there are twice as many persons studying in the so called schools of mental healing, faith cure, Christian science, and the like, than in all the medical schools in the country combined.

**R. E. HARRISON**, a dentist of Armstrong Township, Pa., was seriously injured Aug. 24, 1900, by the explosion of a vulcanizer. It blew into many pieces, and the stove upon which it was standing was completely wrecked. The dentist's daughter was also injured.

**COMPARISON.**—A lady from the far West, who had just been through a course of typhoid treatment with enemata en masse, said while speaking of her experience: "I don't know much about different kinds of doctoring, but I must say I prefer quartz to placer mining."

**"SIMPLE" TOOTH POWDER RECIPE.**—The following appears in a paper intended for women. The prescriber must be as simple as his prescription. Equal parts "burnt crust of bread, white sugar and Peruvian bark. A few drops attar of roses. If a paste is preferred, add a little honey."

**COCAIN BRINGS ON DELIRIUM.**—A man at Indianapolis, after having five teeth extracted, was found in a delirious condition Sept. 10, 1900, and was taken to the hospital, where the physicians diagnosed cocain poisoning. When interviewed the dentist declared that he had used nothing but ice water.

**COMPRESSED AIR APPARATUS.**—To a small motor which runs a fan in summer, or a grinding and polishing apparatus, I connected a small bicycle pump, which pumps air into a reservoir containing ten gallons. This gives a pressure of ten pounds, which I find sufficient.—W. St. G. Elliott, *International*.



**EXTRACTED NINETY-TWO TEETH.**—According to the *Terre Haute, Ind. Express*, an advertising dentist in that city extracted ninety-two teeth on Sept. 12. The newspaper gives the names of those upon whom the outrage was perpetrated and also speaks of the operator's great reputation as a painless extractor.

**CLERGYMAN IN DIFFICULTY.**—It is reported that a minister at Asbury Park, N. J., who was chatting pleasantly with one of his attractive parishioners, dropped his false teeth from his mouth, and the young lady's fox terrier ran off with the set, and kept the clergyman on both the anxious and mourners' seat for some moments.

**"GAGGING."**—Bromidin, in half teaspoonful doses every four hours for two days before operating, benumbs the sensory nerve tips of the buccal cavity and thus facilitates taking impressions or adjustment of rubber-dam, otherwise impossible because of the annoying gagging peculiar to some individuals.—*Va. Med. Semi-Monthly*.

**CARBOLIC ACID IN BURNS AND SCALDS.**—Cover the surface with the pure full strength acid. It combines with the serum to make immediately a new skin over the wound and pain ceases. Combine it with oil in the proportion of twenty drops to one ounce of oil and you have one of the best liniments that can be found.—*Med. Summary*.

**BILL NYE ON BASEBALL.**—Bill Nye, the famous wit, once acted as brevet-umpire in a game of baseball between the "regular" and homeopathic doctors of Minneapolis. He says that "the common error seemed to be the same as that made in the Garfield case—an incorrect diagnosis as to the course and location of the ball."—*Indiana Med. Jour.*

**NAUSEA OVERCOME.**—In case of nausea arising from taking impressions, placing the rubber-dam, or even pregnancy, a 2 per cent solution of cocain, blown directly up the nostrils by means of compressed air, so as to have the fluid in contact with the olfactory nerves, will often relieve the severest case of retching.—S. Freeman, *International*.

**J. W. EGBERT**, a dentist, formerly of Minonk, Ill., who has been practicing in India for the past three years, kidnaped his three-year-old daughter Sept. 23, 1900, from her mother's residence in Chicago. Dr. Egbert's wife left him in India two years ago because, she claims, he treated her cruelly. A warrant has been sworn out for his arrest.

**SUES UTAH BOARD.**—A woman at Salt Lake City has petitioned the district court for writ of mandamus to compel the state dental examining board to issue her a certificate. She claims that she answered correctly 104 questions, all that were asked, and that the board, through personal or sex prejudice, wishes to keep her from practicing.

**LABOR UNION WILL EMBRACE DENTISTS.**—President Gompers of the American Federation of Labor has decided that dentists are eligible for membership in that body, and unions will probably be organized. Those who will join are journeymen dentists who work for other practitioners, and therefore can not be classed as strictly professional men.

**CHRISTIAN SCIENCE REASONING.**—Synnex: You profess to be a devoted believer in Christian science, but I noticed that when you had a tooth extracted the other day you took gas. Mentor: I took the gas, not because there is such a thing as pain, but from fear that I might be led into thinking that there was in the excitement of the moment.—*Boston Transcript*.

**LIGHTNING STROKE WITH RECOVERY.**—According to a correspondent in the *Medical Record*, a girl 18 years of age was struck by a flash of lightning on May 18, and was found with her clothing on fire and the flesh badly burned. One shoe was also burst open. Strange to relate she recovered and is now none the worse for her accident except the scars resulting from the burns.

**TO RESTORE BADLY DECAYED ROOT FOR CROWNING.**—Drill canal as for pin; trim orange-wood stick to fit canal; coat the [stick with a thin film of wax. Having the canal dry and amalgam mixed, insert the waxed stick in the canal and pack amalgam around it, filling flush with gum margin. After amalgam has set, remove the waxed stick and proceed as required.—C. L. Tool, *Dental World*.

**NOVEL DEADBEAT SCHEME.**—A pretty young woman at Syracuse, N. Y., has for the past two years been having work done by various dentists, but when the bills were presented she professed entire ignorance of the transaction. All the defrauded dentists were at first bluffed out by her assurance, but have now conferred over the matter, and will undoubtedly bring the young woman to book.

**SUED BY TWO DENTISTS.**—A woman of Munhall, Pa., had a set of teeth made by a Pittsburg dentist which proved satisfactory until she had to pay for them, then they did not fit, so she went to another dentist and made an appointment for examination, but failed to appear. The first dentist is now suing her for the price of the teeth, and the second dentist for the lost time, and judgment has been given in both cases.

**IS THERE A DENTAL TRUST?**—The Ransom & Randolph Co. of Toledo, Ohio, announce that their cabinets are "For sale by depots of the American Dental Trade Association, and by the manufacturers." Will the Ransom & Randolph Co. or some of the supply houses which are in "The American Dental Trade Association" kindly inform the profession whether that body embraces all reputable supply houses or whether it is a trust.

**TO SHARPEN FILES.**—Wash with soap and a stiff brush, and immerse in a mixture of

Nitric acid.....	1 part.
Sulfuric acid.....	3 parts.
Water.....	1 part.

Let them remain in the fluid until well out; then wash in lime water.—*Dental Hints*.

**DUAL ACTION OF THE BRAIN.**—Inglis holds that we do all our thinking with one side of the brain, the other having an entirely subordinate part and being called into independent action only under special and pathologic conditions. He supports this theory by the usual arguments of righthandedness,

double consciousness, etc., and explains by it certain facts of mental disorders observed. He believes the attempt to counteract righthandedness or produce ambidexterity is a physiologic crime.—*Jour. A. M. A.*

**DISLOCATION OF THE JAW IN EPILEPSY.**—Charles J. Aldrich reports two cases of this unusual accident. The first was in a woman aged twenty-one years, and the second in a man twenty-five years. In each case the first physician called failed to make a correct diagnosis. "From our knowledge of the action of the facial muscles during an epileptic paroxysm," the author says, "we would hardly expect a luxation of the jaw to occur as a complication."—*Phila. Med. Jour.*

**STYPTIC FOR BLEEDING GUMS.—**

R	Tinct. krameriaë.....	3i	4
	Chloroformi.....	m, vii	5
	Acidi tannici.....		
	Menthol, aa.....	gr. iv	24
	Aquæ destill.....	3ii	64
M.	Sig. Apply locally.....	—Viau, in <i>Med. Record.</i>	

**NEW TERROR OF COURTSHIP** has been developed in the case of an Indiana brunet. For some days she had been suffering from a supposed attack of pleurisy, but when a doctor was called in he found that one of the young lady's ribs was fractured. After much questioning, the girl blushingly admitted that her best beau had inflicted the injury while giving her his usual tender embrace before parting on his last visit. The occurrence of the accident was marked by a sharp pain in the side, "a catch in her breath," and a sudden relaxation of her hold.—*Chicago Med. Recorder.*

A GREEN WATERMELON sat on a fruit-stand,  
Singing, "Mellow, I'm mellow, I'm mellow,"  
And a small boy stood there with a cent in his hand,  
Singing, "Mellow, it's mellow, quite mellow."  
He ate a big hunk cut right out of the heart,  
And he ate it all up to the hard outside part,  
And they carried him off in a rag-dealer's cart—  
Poor fellow, poor fellow, poor fellow.—*Medical Standard.*

**SWEATING OF THE HANDS.—**

R	Sodii boratic (borax).....	3iv	16
	Acid borici.....	3i	4
	Acidi salicylici.....	3iv	16
	Glycerini.....		
	Alcoholis diluti, aa.....	3iii	64
M.	Sig. Apply with friction three or four times a day.		

—*Jour. de Med. de Paris.*

**AFTER-PAIN FROM TOOTH EXTRACTION.**—Isaacson thinks that the painful sensations often felt after tooth extraction are due to retention of the pyogenic membrane, expansion of the osseous walls, fracture of the alveolus, retention of the root and spicule, and special conditions due to inflammation and suppuration. He uses the bur to take out the root when it cannot be reached by the forceps or is too small, and the use of ethylic chlorid or co

cain injection rather than nitrous oxid, which is too temporary in its effects. The chief point of his paper is that these pains are nearly always caused by foreign substances and that removal is preferable to any local treatment that can be used.—*Jour. A. M. A.*

**FLASHES OF ELECTRIC LIGHT ON THE EYE.**—Dunbar Roy believes there have been more cases observed than reported of temporary injury to the eye through intense electric flashes. The danger of the electric light is illustrated by a series of examples from practice. In a number of instances cessation from school work has had to be ordered because of the injurious incandescent lights; and in other cases student's lamps had to be substituted. Electric ophthalmia is discussed. It seems probable that domestic lights are injurious to the eye in proportion to the amount of ultra-violet rays they contain. The Welsbach gas light seems less injurious as a light by which to read and work than others. There should always be an under shade to mitigate the light.—*Med. News.*

**AUTOPSY ON KING JAMES I.**—Mr. Jonathan Hutchinson in his *Archives of Surgery* says that in the Harleian Manuscript 883, there is a copy of a letter from a Mr. William Neve to Sir Thomas Hollande, concerning the embalmment and bringing to town of the body of King James. The writer says: "The King's body was about the 29th of March disemboweled, and his heart was found to be great but soft, his liver freshe as a young man's, one of his kidneys very good, but the other shrunk soe little as they could hardly find it, wherein there was two stones. His Lites and Gall, blacke; judged to proceed of melancholy. The semytur of his head so stronge as they *could hardly breake it open with a chisell and a sawe*; and so full of braynes as they could not upon the openinge keep them from spilling; a *great marke of his infynite judgement.*"

**DENTIGEROUS CYSTS OF THE SUPERIOR MAXILLA.**—Dr. Frederick Cobb, Boston. The location of the hard bony swelling, he said, was usually at the side of the nose, and examination of the nostril sometimes showed a bulging of the outer wall of the vestibule outward and upward. Sometimes the sinus could be seen running upward into the swelling. The usual symptoms were slow swelling of the face, without suffering, except perhaps a slight pain about the roots of the teeth. On the sound side the transmission of light below the organ was better than on the other side. On inserting a cannula into the tumor, a brownish fluid escaped, and if by means of a syringe fluid was injected, it escaped around the trocar. After evacuation of the cyst and its consequent collapse, a sharp bony prominence, representing the roof of the cyst, would become apparent. In his own cases the swelling had contained no teeth. It was important to determine the condition of the teeth entering the cyst. The bony opening in the cyst should be packed until granulation had become well established. He thought these cysts started in an inflammatory process originating around the diseased teeth, characterized by excessive secretion. Some of the cases had come to him with a diagnosis of antrum disease. The salient points in the treatment were evacuation of the cyst and careful dental treatment.—*N. Y. Med. Jour.*

**CARE OF TEETH IN THE SYPHILITIC.**—Dr. C. Travis Drennen (*Memphis Med. Monthly*) says that he makes it a practice, if the gums are in poor condition and the teeth and tongue unclean, to have the patient procure a rather heavy toothbrush and with it rub and scrub before and after each meal, not only the teeth and gums but likewise the tongue, until it also is clean. Following this, a saturated solution of boric acid may be used with excellent effect for an indefinite length of time. In fact, it is about the only preparation with which he is familiar that can be used without the production of deleterious results. No harm is done should the gums be soft and spongy, bleeding freely under such rough handling, for the parts will be relieved of their engorgement and pathogenic material washed away. Dr. Drennen has found nothing half so simple and effective for hardening the tissues as alcohol, and this he uses night and morning by rolling a piece of cotton on some suitable applicator and thoroughly applying it to the affected areas. Should the patient complain too much at this seeming hard treatment, cocain may be applied for a few times and then the work can be accomplished with all ease. Nicotin is not only poisonous to the general constitution under such conditions, to various degrees in different individuals, but it is likewise a source of irritation to the mucous membrane of the mouth, whence it should be discontinued in all forms until the patient is considered cured.

**WAS IN THE BUSINESS.**—It was on a Cleveland street car that a well-dressed man carried his hand to his jaw now and then and uttered a stifled groan. After a bit a fellow-passenger had his curiosity aroused and brusquely queried: "Toothache?"

"Yes."

"I've been there and know all about it. If she's holler and has the jumps it ain't no use fooling around. What you want to do is go to a dentist."

"Um! Jerusha, but how it aches!"

"Go right to the dentist and have it yanked out. Man with the toothache always feels a little scared about having it yanked, but that's all imagination, you know."

"I'd rather be shot!" groaned the sufferer.

"Oh, pshaw! Go to some dentist who gives laughing gas. He'll give you gas and take the tooth out without your knowing it. I pledge you my word that it won't hurt any more than paring of a finger-nail."

"Um! What a liar! G'way from me!"

"Why, man, I pledge you my word that you'll never—"

"Don't talk to me! I know all about it! I've been a dentist myself for the last fifteen years!"

"Oh, you have!" growled the other as he backed away. "Well, that's different. It will not only seem to you as if your blamed old head was being pulled off your shoulders, but your jaw will ache two weeks after, and I'm durned glad of it too!"

**AGREEMENT NOT TO PRACTICE CONSTRUED.**—A physician, it was alleged, agreed to sell his residence, house and lot in an incorporated town, and his practice as a physician, good-will and location in said town, and was, as it

was averred, to turn over and deliver to the purchaser his location, goodwill and practice in the territory surrounding said town, and was never to practice as a physician at any time in said territory. Now such contracts, the Supreme Court of North Carolina holds, *Hauser vs. Harding*, do not fall under the head of contracts for the restraint of trade, and are not, as such, contrary to public policy and void. But even so, it was argued that the contract was uncertain, both as to the time during which it was to continue and as to the territory over which it extended, and therefore void. Not exactly so, thinks the court. As to the uncertainty as to time, it says that it has heretofore held that where no time is mentioned in such contracts they are to endure during the lifetime of the grantor. Yet the language of that part of the contract which undertook to restrain the purchaser from practicing medicine outside the town mentioned, it states, was not sufficiently definite to mark and define any certain territory. Wherefore, taking the limits of the incorporated town as well defined, but the reference to territory surrounding it being too uncertain to be capable of being marked out or identified, the court holds that the seller should be enjoined and restrained during his life from practicing medicine within the corporate limits of said town, but that for uncertainty the contract could not be enforced as to the so-called surrounding territory.—*Jour. A. M. A.*

**PREHISTORIC BACTERIA.**—Owing to the ephemeral nature and to the exceedingly small size of bacteria, it would seem wellnigh impossible to study the minute forms which assuredly must have existed ages ago. Two French investigators, B. Renault and C. E. Bertrand, have, however, microscopically examined several varieties of anthracite coal and partially carbonized wood, and believe they have discovered petrified bacilli. Renault has even designated several of his species by name (*micrococcus carbo*, *bacillus carbo*, *bacillus colletus*). He advances the theory that these bacteria have effected the transformation of wood cellulose into coal, a theory which is decidedly opposed to our conception of the carbonization of wood. Bacteria, according to Renault, would therefore be most powerful factors in the geological development of the world.—*Scientific American*.

**ETHYL BROMID ANESTHESIA FOR EXTRACTION OF TEETH.**—Dr. A. P. Garine has collected 1,108 cases in which ethyl bromid was used in dental operations without a single accident. In one case the ethyl bromid proved of no avail in producing anesthesia, and chloroform had to be substituted. Children bore the drug well. The greatest number of teeth extracted at one time under the influence of the drug was seventeen. The effect of the first moments under the anesthetic is a sensation of asphyxia, and sometimes this gives rise to violent excitement on the part of the patient. In the majority of cases the patients recover rapidly from the effects of the anesthetic, and the after effects are not serious. The ordinary Esmarch mask is used and about 15 grams (half an ounce) of the anesthetic are given during the operation. Bromid of ethyl is said to be better than nitrous oxid because it does not produce the cyanosis which the latter causes, and because the analgesia lasts longer, even after the patient's consciousness returns.—*N. Y. Med. Jour.*

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# The Dental Digest.

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CHICAGO, OCTOBER, 1900.

No. 10.

## Original Contributions.

### THE MUMMIFICATION OF PULP-TISSUE.

BY H. PRINZ, D.D.S., ST. LOUIS. READ BEFORE ST. LOUIS DENTAL SOCIETY, OCT. 9, 1900.

In presenting to the members of this society the somewhat "burning" question of pulp-mummification, the essayist wishes to state that he has made an effort to epitomize the present literature on the subject as far as possible, to which are added his own experiments.

The assertion has been made by writers on and practitioners of dentistry, that they could successfully remove all pulp-tissue from any root-canal and consequently fill such canals to the very apex. This I do not believe. Such statements can be verified only by ocular demonstrations, and as unfortunately this cannot be done except in a minute fraction of cases, we have a right to doubt them, honestly as they may be intended. A thorough study of the anatomy of the teeth will convince any one of the impossibility of such a procedure; but that certain men by their superior dexterity have obtained better success than others goes without doubt. The buccal roots of the superior and the mesial roots of the inferior molars, and occasionally of the first bicuspid, present the greatest obstacles against instrumentation. By questioning gentlemen, who have admitted that they cannot in all cases successfully remove all pulp-tissue, as to what they do with such teeth, they have said that they treat them like all others, and trust to providence for their future welfare.

A minute particle of non-sterilized, infected material left in a canal will sooner or later cause disturbance, with all its sequellae, and as a result the tooth must usually be sacrificed to the forceps. This statement may be contradicted by the fact that a large number of teeth which belong to this class have been successfully filled. No doubt this is true, but the success of the operation is due entirely to mode of treatment, viz., surgical cleanliness, and consciously or unconsciously mummifying any remnant of pulp-tissue present by



the persistent use of strong antiseptics. Arsenious acid alone, or in combination with tannic acid, as employed for devitalization, and certain essential oils, such as oil of cassia, as used for canal treatment, are known to be superior embalming agents, and I attribute the success of such an operation to the liberal use of these materials.

Let us turn now for a few moments to the literature upon the subject. More than half a century ago, as Flagg informs us, the dentists tried the then newly-discovered creosote in connection with such work, while for the last twenty years he employed a paste consisting of carbolic acid, oil of cloves, sulphite of lime and acetate of morphia. In 1874 Adolf Witzel of Essen made an effort to solve systematically the problem of pulp-mummification. He advocated the amputation method, which, if I am correct, was first practiced by the late Allport. Witzel believed that arsenious acid would devitalize only the inflamed part of a pulp, which after extirpation would leave the healthy stump in the canal. The portion left he treated like any other pulp-exposure. In 1886 he changed his views, and spoke about these pulp-remnants as being "shrunk to antiseptic threads," etc. In 1882 Telchow of Berlin made known that he had found in Wickershimer's preserving fluid a medium with which he could successfully mummify pulps. This fluid is a complex mixture of alum, arsenic, various salts, methyl alcohol and water, and is used as a preserver for anatomical specimens. It never gained popularity in this connection. Baume in 1888 published his method of preservation of pulp-stumps by embalming them with borax and alum. The crown of the pulp was amputated after cauterizing, and small pieces of borax brought in direct contact with the stumps and covered with tin-foil and cement. The borax method, as might be expected, was a failure. In 1892 Herbst of Bremen advocated a method of pulp-amputation which for some time was much lauded abroad and in the States. The exposed pulps he treated with a mixture of 92 parts native cobalt (normal cobaltic arsenate) and 8 parts cocain. After a few days, the coronal portion was removed under aseptic precautions, the cavity sterilized and tightly closed with soft tin burnished into place by his rotation-method. This is practically the old arsenic-method with some modifications. For a time these teeth may be at rest, but after about five years we can expect fifty per cent to have abscessed, and rightly is this treatment discarded. Miller of Berlin is the next

prominent member of the profession to spend much time in solving the problem. A detailed description of his mode is found in his works. After much experimenting he finally advocated small tablets, consisting of corrosive sublimate  $\frac{1}{32}$  gr. and thymol  $\frac{1}{12}$  gr., which he used in much the same manner as Baume recommended for the application of borax. The success obtained with these tablets has been very satisfactory; the only objection is the bluish-black discoloration of the tooth from the sublimate. Soderberg of Australia published a highly interesting account of his method in 1895. He modified Miller's formula by substituting alum for sublimate, and added zinc oxid and glycerin to form a paste. The results obtained with this material have been very satisfactory. Waas, 1898, and Houghton, 1899, are highly enthusiastic in their praises of the good results; neither one claims to have ever had "a failure to record for such work or even one complaint of tenderness." In 1898-1899 Boennecken of Prague published his method of mummification by using a paste consisting of cocain, thymol, formaldehyd, zinc oxid and glycerin. His experiments and success with this paste were highly pleasing, and his method has gained many friends in Europe and in America. Formaldehyd, by its superior qualities as an antiseptic and strong coagulant (tanning agent), suggests itself at once as being much more effective than any of the other drugs so far used. In 1899 appeared an article by Dr. Brooks of Martinez, Cal., in which the use of chromic acid in conjunction with sulfuric acid was highly recommended for pulp-mummification. As is known from practical histology, certain salts of chromium will, if added to animal tissues, harden them—the albumins are changed to compounds which are insoluble in water. In other words, a process of tanning takes place. It should be remembered that chromic acid is an explosive agent—"when brought in contact with alcohol, ether, glycerin, or other organic solvents, decomposition takes place, sometimes with dangerous violence." U. S. P. Late in 1898 Julius Witzel of Cassel, Germany, published a paper on the action of formaldehyd and sulfuric acid upon the pulps and periostium of the teeth. From his presentation of the matter, and from Lepkowski's paper on the use of formaldehyd (Dec. '99), I have gained much information. A host of other practitioners have written on the subject of pulp-mummification; some have praised this operation, while others condemn it as being absurd and unscientific.

The question now arises, when and where is the mummification of pulp stumps justifiable? For practical purposes it is sufficient to diagnose three stages of pulp-disease: 1. Hyperemia. 2. Inflammation. 3. Gangrene. The first and last stages are excluded from our present consideration. Hyperemia can be remedied by proper medicinal and surgical treatment, while gangrene requires methods of treatment peculiar to itself. Only those pulps which are partially or totally inflamed are eligible to the mummifying process. What conservative treatment can accomplish with an exposed healthy or inflamed pulp is not within the scope of this paper.

*After the devitalization of a pulp all available efforts should be made by the conscientious practitioner to remove as much of the pulp-tissue as possible!* This point I wish to especially emphasize. Even if we are now able to entirely mummify a pulp, this method should not be practiced indiscriminately, as it is antagonistic to one of the fundamental laws of surgery, which teaches us to remove all necrosed tissue, and further, it may create a tendency to carelessness and imperfect work on the part of operator. Therefore, again let me state, that only in such cases as it is utterly impossible to remove all the pulp-tissue is application of the mummifying principle justified?

*Mode of application:* Apply arsenious acid to the exposed pulp in the usual manner. The dressing should be left undisturbed for at least four to five days. By this time the devitalization is more complete, and the dental fibrillæ and odontoblasts which form the junction between dentin and pulp are more disintegrated and therefore facilitate removal of the whole pulp at once. It is advisable to place a small quantity of the mummifying paste upon the devitalized pulp for one or two days. By now removing the pulp one will be often greatly surprised to find it to come away entire, "hard and stiff as a fiddle-string." But in such cases where we have tried in vain to remove all of the pulp-tissue, we enlarge the pulp-chamber and the canals to about one-third their length. The cavity is then washed with a solution consisting of one part formaldehyd to two parts of water, making about a ten per cent solution. With the warm-air blast we try to saturate the pulp-stump thoroughly. This formaldehyd bath, as Boennecken calls it, is very essential. By the great penetrating power of formaldehyd the whole stump will be impregnated and any products of decomposition present at

once rendered neutral. If the pulp shows any sign of life it will react immediately, but surrenders soon, as formaldehyd acts practically similar to arsenic as a caustic. The formaldehyd-solution should be prepared fresh every four weeks and should be kept in amber-colored bottles. After this preliminary step, the paste proper is applied with sterilized smooth broaches, the canals and crown portion are filled with it, a disk of asbestos-felt, previously sterilized in the flame, placed over same, and the whole covered with cement. The filling can be completed at same sitting with whatever material is indicated for the case.

About five years ago I made my first experiments in regard to pulp-mummification. At that time glowing reports were published about the wonderful antiseptic properties of formaldehyd, using Soderberg's alum-paste as a basis. I substituted at first the liquid and later on the dry formaldehyd for the alum, on the ground that this drug is a superior tanning agent and at the same time possesses a remarkably strong germicidal power. If animal tissue is brought in contact with formaldehyd the albuminoids are changed to an insoluble compound—they are tanned. Tissues shrink but very little or not at all if preserved in such solutions. This is a most important point in regard to the pulp-stumps left in the roots, for they keep the foramina hermetically sealed. Formaldehyd has a very great penetrating power; it will combine with ammonia-compounds which are the result of putrefaction of the nitrogenous material of animal tissue, rendering these compounds inert. The liquid formaldehyd does not preserve its antiseptic power for a long time; the solutions of the gas in water can not be concentrated above 35—40 per cent. But the dry formaldehyd, known as trioxymethylene or paraformaldehyd (paraform), a polymerized form of this gas, offers a ready substitute. So long as a minute particle of this paraformaldehyd is left in contact with dead animal tissue, the tissue is absolutely sterile, and any microorganism or infectious product brought within its reach will be promptly rendered inert. The normal temperature of the mouth is sufficient to cause a slow stream of formaldehyd gas to be generated, creating a continuous process of sterilization. Thymol, a part of the original formula of Miller, I have retained. It also is a very strong antiseptic, and being very slowly soluble in water, it has a more lasting effect. It is stated that thymol combined with certain other drugs is used with great

success for preserving anatomical specimens. Paraformaldehyd and thymol have not "body" enough to make a suitable paste; zinc oxid, an inert substance, is therefore added, and very little glycerin is needed to give the mixture the proper pasty consistency. Cocain as part of the paste, as suggested by Boenneken, to make the application painless, is unnecessary. Any vitality left in the pulp-stump will promptly manifest itself by the formaldehyd-bath.

The formula reads now: *R.* Paraformaldehyd, Thymol aa 3j; Zinc oxid 3ij; Glycerin q. s. to make a stiff paste. Keep in amber-colored, well-stoppered bottles. This paste will keep any length of time without changing. Occasionally (in warm weather) a drop of glycerin will separate, but it can be drained off.

What will become of the pulp-stumps? may now be asked. For experimental work I have used the pulps of calves' teeth, as they are more suitable than those of human teeth. These pulps were placed in proper-sized glass tubes, one end sealed with wax, and upon the other end the paste was applied, according to the above given directions, and sealed over with wax. Pulps treated with formaldehyd solution alone were very readily penetrated by the liquid—it took only a few hours; while the paste, if used without the solution, would not accomplish this in less than from 15—25 days. Hence the importance of the formaldehyd-bath. The same experiments were repeated upon recently extracted teeth with undecomposed pulps with similar results. I had occasion to watch similar experiments in the mouth, and the results showed the same gratifying data. The pulps became a semi-elastic mass, resembling somewhat crude rubber, and filling the canals completely. In all experimental cases I have been able to demonstrate the presence of formaldehyd at the very end of the pulp by the aid of Liebermann's phenol test for formaldehyd, which is as follows: Cut off a few millimeters of the apical part of a mummified pulp, place it in a test-tube in about 15 c. c. distilled water, heat for a few minutes and add a drop of a very dilute aqueous phenol solution. Then pour this mixture slowly upon concentrated sulfuric acid in a test-tube, so as to form a layer. A bright crimson color appears at the zone of contact, indicating the presence of formaldehyd.

Pulp-mummification has passed the experimental stage, and although still in its infancy, has gained a place in dental therapeutics which will become more prominent in the near future.

## LACK OF DENTAL EDUCATION AMONG THE PEOPLE.

BY R. G. PORTER, D.D.S., PETOSKEY. READ BEFORE THE MICHIGAN STATE DENTAL ASSOCIATION, AT KALAMAZOO, JUNE 11-18, 1900.

Knowing as we all must the extreme delicacy attached to a discussion of this subject, owing not only to the danger of being criticized by fellow practitioners, but also to the possibility of being called down by our dental societies for advertising if we are not very careful in the methods employed, you may judge with what feelings of reluctance I consented to write upon this topic.

The object of this paper is not to teach members of the dental profession things they do not know, but rather to call to mind the necessity for more diligent and persistent effort in the discharge of our duty as teachers as well as philanthropists in matters dental. We believe this subject should receive special attention, because all other topics in the general practice of dentistry will more readily take care of themselves, for the reason that they seem more apparently and directly remunerative. In view of the existing lack of dental knowledge among the people, this subject is "the paramount issue."

The masses, with but few exceptions, are ignorant of the value of the organs of mastication in relation to the first great principles of digestion and assimilation; ignorant of the physiological effects of the deciduous teeth in relation to the permanent; ignorant of the bad effects of pathological conditions of the first as well as of the permanent teeth, and the dire results of such upon the health of the individual, be it child or adult; ignorant as to the myriads of germs of various diseases which multiply, both in health and sickness, by geometrical ratio, in what is acknowledged to be the best of all incubators, the mouth; ignorant that an acid reaction in the mouth injures the enamel of the teeth, whether the acid is taken directly into the mouth or is formed there by decomposition of the food; ignorant that mixing food during mastication and insalivation with the debris common in neglected mouths is very unwholesome; ignorant that cleanliness, *in the mouth*, is next to godliness, and that broken laws or neglected opportunity in dental hygiene are sure to bring a multiplicity of punishments; ignorant that certain simple rules carried out with conscientious regularity will bring a rich reward.

The care of the teeth begins with the cradle. It is deplorable

that so many mothers are so ignorant, so careless, so indifferent to the welfare of their children's teeth. From the dental profession alone must come the much needed help. The people are crying out to us for more knowledge, and what is needed at the present time is the simplest kind of instruction. We can not hope to educate the older men and women very much on this important subject, but our effort should more especially be spent upon the children, youth and young people.

The difficulty seems to be the lack of method or methods to communicate this enlightenment without infringing upon our most valued Code of Ethics. One plan which seems feasible that I would like to present for your consideration is, that this Association appoint a committee whose duty it shall be to see that every school-board in the state be instructed and advised to invite one or more competent dentists from their community to deliver to the public schools during the winter term short, condensed, instructive lectures on dental physiology and hygiene, which shall also be printed in the county papers. This can be done with little expense.

In this way we are not only impressing the teachers with the importance of the question, but are educating the rising generation, and through the press are reaching many who are beginning to realize their lack of dental knowledge and the importance to them and to their families of remedying the matter.

There is also a great opportunity for instruction in our colleges, normal and industrial schools, where hundreds are fitting themselves for the profession of teaching and going out to take charge of common schools in all parts of the state. In the effort to impart instruction through the teachers to the scholars of the common schools, we have found the teachers, without an exception, willing and anxious to communicate this knowledge to their several classes, the results of which in numerous cases brought to our attention have been very gratifying.

We believe also in every dentist having cards or small folders upon which may be printed for instance: No. 1. Instructions to the mother on the care of the teeth of children. No. 2. Simple, brief instruction on the care of natural teeth for adults. No. 3. Reasons for proper care of artificial dentures. These will be found of benefit to the patient and save the dentist many words and much time. Can we expect the people to be protected from the wiles of

the dental charlatan until they are sufficiently educated to intelligently discriminate between intelligent and skillful effort, and the bungling snob who is practicing a profession for revenue only?

## NO. 1—TO MOTHERS.

Remember, that you are *responsible* for the condition of your child's teeth.

By *nature* a child's teeth should not decay, and should in all cases be kept free from decay. They should be retained and kept sound.

First. Because the jaw is not retarded in its natural growth, and space is made for the second or permanent teeth, which are consequently not so liable to come in crowded or irregular.

Second. If the teeth decay it will cause discomfort in chewing, and the natural tendency will be to swallow without mastication. This will injure the child's digestion and endanger its health.

Third. Any decomposing substance in the mouth, either from decay of the teeth or of food-stuffs having been left from a previous meal, mixed with food and swallowed by the child, is detrimental and may bring about some form of disease.

The first or temporary teeth should number twenty.

The first permanent molar tooth the child gets when about six years old—a large tooth which comes just back of the temporary molar teeth *before* they are shed (or come out). This tooth is *permanent* and is never replaced by another, and is also quite liable to decay. *Look* for it and attend to its needs.

See that the child's mouth is cleansed after each meal with a soft cloth,, when very young, and with a small brush and water after teeth erupt.

Take the child to your dentist from two to four times a year for examination.

Teach the child when old enough to take care of his *own* teeth.

## NO. 2—IMPORTANT.

First. Remember that your health depends largely upon the condition of your teeth.

Second. That mastication is the first and a very important principle in digestion.

Third. That disease germs of all kinds form rapidly in the mouth and may be the cause of sickness.

The following simple directions are to assist you in the preserva-



tion of your health and natural teeth, and same if followed with persistent regularity will prevent decay of the teeth: Cleanse the mouth, using a quill toothpick or floss silk and a good brush after each meal. If necessary, and prescribed by your dentist, use a tooth-powder or mouth-wash. Have your teeth examined at least twice a year.

DISCUSSION. *Dr. N. S. Hoff*: No matter how intelligent a community is, we are continually brought face to face with gross ignorance of oral hygiene, and that in matters with which every one should be familiar. How few of our patients know how to brush the teeth effectively, and yet many dentists never instruct them along this line. On the other hand, some people brush their teeth too much—in many cases not then getting them clean, and whether or not this result is attained, the teeth and gums are often injured by excessive use of too hard a brush or gritty tooth-powders. Massage is good for the gums, but like all good things it can be carried to an extreme. Pyorrhea may not be a filth disease, but an unclean mouth helps its progress, and if patients could be convinced of this their cooperation might be enlisted. No honest-minded man need be afraid of infringing the code in this work, for it is of the highest professional order. While the unscrupulous man can make an advertising scheme of it, no honorable man will reach even the danger line.

*Dr. L. P. Hall*: Little children are always impressed by the physiology taught in school, and would give heed to what a dental lecturer might say. An examiner ought to visit the schools and examine each child's mouth, for many people able to pay for dental services would see that their children's teeth were cared for if the matter could be brought to their attention in this way. Advice to parents should come from the school board, as it would be resented or wrongly judged if given by dentists or dental societies.

*Dr. E. N. Root*: My six-year-old boy has something interesting to tell about school work almost every day, and if he has been given any instructions, the house is turned upside-down until they are carried out. I believe one word from the teacher would have more effect than a long talk from parents.

*Dr. C. F. Metcalf*: The most important fact to be impressed upon parents is, that if the teeth are kept absolutely clean they can not decay.

*Dr. J. N. Crouse:* The most important thought in connection with this subject has not been touched upon. We know that teeth decay at one time of life and are immune at another. We know that in the same family the teeth of one child will decay more than those of another, with the same kind of food. We know that the most delicate-looking individuals will often have the least difficulty with caries of their teeth, and *vice versa*. The great problem which the dentist has to solve to-day is this: Why are teeth immune from decay under so many different circumstances? Miller and others have discovered that the decomposition of starchy matter is brought about by microorganisms, which produce an acid and cause cavities to form in the teeth. Now, we have the starchy matter in some mouths, and we have the microbes and no cavities. I have in mind a young lady who has been in my care for twenty years. She came to me when a baby, very delicate, had curvature of the spine, wore a brace for a time, yet she never had a symptom of decay in her teeth. In the same family is a young man who is very vigorous, yet his teeth are never immune from decay; it is going on all the time. When we get to the point where we know what brings about this difference we shall be able to state facts, and something will be accomplished in the way of overcoming decay.

When I first commenced practicing in Chicago there was a journal published by the dentists to educate the community, but it soon aroused jealousy and a great fight; the dentists who were not in it thought the others were trying to take advantage of them, and the project wound up in defeat.

Dentists must keep their own teeth clean if their advice is to have any weight with patients, yet there are a great many practitioners who do not think the state of their own mouths cuts any figure. How many patients come to your office with clean teeth? It is rarely that they are effectively brushed. I generally take a mouth-mirror and hand-glass, before starting to operate, and show patients how dirty their teeth are, so they dare not come again until they are well brushed. A pledget of cotton dipped in peroxid and applied to the teeth before the patient, with an explanation why it foams, is a good object-lesson. Next time the teeth will be better brushed; and this is true with children as well as adults. I have been practicing in Chicago thirty odd years, and have as patients

grandmothers, mothers and children, and it has been my pride to now and then have a family come to me with their teeth brushed. When I have accomplished this I have done about as much as I can do in any one line. When a child is sent home once or twice, the importance of brushing his teeth is impressed upon him, and he returns with them clean. I often send even youths home with a note—"I have sent this child back to brush his teeth; he need not return until he does."

VOICE: How much do you charge for that appointment?

Dr. Crouse: In taking that action I am giving just as much service as a physician who writes a prescription, or a lawyer who gives a little advice and charges a handsome fee. I try to make the thought of unclean teeth just as disgusting as possible, and come very near doing it. That goes a long way, and the sister and brother of that child get onto the racket, and take the chair with a deal more fear on the subject.

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## PREPARATION OF CAVITIES FOR CONTOUR FILLINGS.

BY WM. E. HARPER, D.D.S., CHICAGO. READ BEFORE THE MICHIGAN STATE DENTAL ASSOCIATION, AT KALAMAZOO, JUNE 11-18, 1900.

Of the failures in dental practice it has been my experience to observe that none is more frequent and humiliating than the gold fillings of mesio and disto-incisal cavities in the centrals and laterals; and this, too, after years of experience, painstaking and conscientious effort, with a liberal dental education as a foundation. The triangular outline of the proximal surfaces with the narrow labio lingual diameter in the incisal third of the crown, at which point the incisal and lingual force is continually exerted, is the chief cause of these failures, because of the small amount of dentin in which we may cut retention at this point.

To most effectually prevent the movement of a filling, the resistance should be cut flat in all directions and should be at right angles to the direction in which the filling is disposed to move; this applies equally to the floor or seat, which resists the incisal force in these cavities, and the retention, which is intended to resist the tipping either to the labial, mesial or distal.

In the cavity I present for your consideration (a mesio-incisal) the dentin of the cervical wall constitutes the seat and is made flat in all directions and as large as the enamel, which must be supported

by dentin, if the pulp will permit. In this cavity the resistance to force from any and all directions is more extensive and more effectually located and shaped, with the least possible sacrifice of tooth substance, than in any other method of preparation with which I am familiar. With the proper instruments it is exceedingly simple to prepare, requires less time and filling material than the step cavity, and offers greater security to the filling.

To carry out this method of preparation it is imperative that instruments of the exact size and form as those indicated be used; otherwise the essential detail, upon which the greater security of the filling is dependent, will be in part lacking. It is in these details only that the cavity differs from those prepared by many operators of the present time. For retention, operators generally make a substantial undercut at the cervical under the curves of the labio and linguo-cervical enamel wall. This is continued as a groove toward the incisal along the axial wall to the labial and lingual, and is made with a round or inverted-cone bur, which, if cut to a depth of half the diameter of the head of the bur, would leave a half-round groove. This groove is a very important factor in the cavity I present. In the modification I suggest the depth remains about the same but differs in form, being made square with instruments mentioned below.

If each of these grooves is filled solidly with gold, can there be any question as to which will most effectually resist displacement? To my mind a half-round groove offers no security, while a square groove of less depth is retentive under force from all directions. With this conclusion I angle or square out all grooves, undercuts and junctions of different walls. A square retainer, angle or groove can be more perfectly filled than a pit, groove or seat with a concave or half-rounded bottom for a foundation on which to condense the gold. I shall not attempt to argue the matter with those who question this statement, as it is best demonstrated. I would ask that you fill with gold a square groove with such instruments or pluggers as it is advisable to use for filling teeth, then cut through the filling and matrix and examine under the microscope.

In cavities of this class it is generally necessary to secure separation for restoration of contour and to permit finishing. With the rubber-dam in position we proceed to cleave down all unsupported enamel, including the weak incisal angle. This is done with a

sharp, medium-sized chisel fifteen-tenths of a millimeter wide. The labial and lingual margins in their incisal half should be cut to the nearest developmental groove, as these are weak lines of enamel and should be included in the cavity. The cervical or gingival margin should be approached by a long, smooth curve, and in its middle two-thirds should be cut straight labio-lingually. If the interproximate gingivæ be normal, this margin should be located beneath it for protection. If there has been considerable recession this extension may be inadvisable, in which case the cervical margin should be located at a wide portion of the interproximate space but well away from the gum margin and the contact point. With a well-contoured filling in such a position, the saliva and ordinary prophylactic measures will give reasonable protection against further decay.

The outline of the cavity being established, with all margins located at a self-cleansing point, meeting the requirements of extension for prevention, we now take a small inverted-cone bur about eight-tenths of a millimeter in diameter, one of the two smallest sizes made, and holding the handpiece parallel with the long axis of the tooth, with a swaying motion flatten the dentin of the seat or cervical wall, extending it well beneath the labio and linguo-cervical curves of enamel; at the same time the axio-cervical angle is squared out. This makes a substantial seat and gives ample retention to the labial and lingual at the cervical. In the dentin of each of these point angles the flat end of bur is made to cut root-wise to about the depth of head of bur (not more) for retainers in which to start the gold, and from the bottom of these the bur is drawn incisally along the axial wall close to the labial and lingual enamel, making the grooves.

These are quite deep under the cervical third of the cavity, becoming shallow, about the depth of diameter of bur, at the center of the length of axial wall, at which point they again gradually deepen as they approach the incisal retention. At this point an undercut is made parallel with the cutting edge (about a millimeter and a half, mesio-distally) and as near to it as the dentin will permit. The engine may now be dispensed with. These grooves are now squared out in their entire length with hoe 6-2-6 for the cervical third, cutting root-wise, and hoe 6-2-23 for the incisal two-thirds, drawing from the cervical to the incisal. If these instruments are sharp, two or three strokes will be sufficient.

The incisal retention is next squared out parallel with the cutting edge, using hatchet 6-2-23 with a sweeping motion labio-lingually. This retention is reinforced by sloping the axial wall in its incisal third to the bottom of the incisal retainer. The lingual enamel wall is then cut away in the incisal third, leaving the labial exposed from the lingual to the extent of about eight-tenths of a millimeter; this forms a definite angle extending from the incisal retainer to the cutting edge.

The remaining labial plate is beveled at the incisal to allow the gold to be built upon it for protection against incisal force. The lingual half of the axial enamel is also beveled to a corresponding extent distally at the incisal to reinforce the enamel at this point. The entire enamel wall is now carefully examined for imperfections; any whitish spots or unsupported enamel must be removed. The finished walls should now be parallel with the direction of the enamel rods and have a clear, vitreous appearance. The enamel wall is then slightly beveled all around, the cavity margin including about one-quarter the thickness of the enamel. All debris is carefully removed and the cavity is ready to fill.

**DISCUSSION.** *A Member:* First, do you do all the beveling with the chisel, and second, do you make this preparation universal—that is, independent of the size of cavity?

*Dr. Harper:* Yes, to the first. Second, I speak only of mesio or disto-incisal cavities, not simple ones.

*A Member:* You speak of having some dentin next to enamel. Suppose it is not there, do you cut away until you reach supporting dentin?

*Dr. Harper:* No, if all were gone I could not get any. In the incisal third I always cut away unsupported enamel, but in the cervical two-thirds you can leave unsupported enamel. I have here two specimens which demonstrate this idea of filling. One is a model of a cavity prepared after this manner, and the other a filling of brass, which will give you an idea of the exact shape of such a filling. They are so cut out as to show the undercut at the incisal and cervical walls, and you will see that there is no real undercut except at the incisal. This is the tooth and filling. The tooth can not slide below because of substantial undercuts, as shown by projections on the filling model. The filling must rotate or tip out; there is absolutely no movement; if the filling comes out it must

tip out. There is not any resistance to the tipping strain at the incisal portion of fillings, but also half-way down the tooth in the square groove, which can be seen in this case, because the filling at the tip of the incisal is uncovered.

*Question:* What do you do in those teeth where the frail, delicate enamel almost comes together at incisal edge? I have filled many and not left any dentin between the plates and incisal edge. Some teeth are too thin to have the enamel supported by dentin.

*Answer:* If there has been any secondary decay, or the dentin has been cut away, you can occasionally leave the enamel at the incisal edge unsupported, but still there is some risk involved in doing so. If there is no dentin between the two plates at the incisal it is an unsafe procedure to make a contour filling; you would better extend the cavity until you get enamel supported by dentin. It may be argued that this is a good method in some teeth; I say it is good in all teeth. I carry out this method in thick teeth, labio-lingually, and find it equally good in thin teeth. I do not make the statement that you never have failures in thin teeth labio-lingually; we make failures with any method, but this is the best.

*Question:* In a case of that kind, instead of cutting away so much from incisal, why can't you save enamel at incisal edge and anchor the filling from the cervical portion of the cavity? For example: In order to get support from the dentin, why not cut away more from the labial portion of tooth and expose more filling if you think it is so necessary to have dentin for support? Can't you get all the support you need from the cervical portion of cavity?

*Answer:* The trouble is that the support at the cervical is so far away from the point at which the force is exerted. I have seen so many bites tested; I have seen one individual who could bite with his incisors equal to a pressure of 200 pounds. You do not need any support at the cervical. Where you anticipate any great force of masticating it can easily be determined by an examination of the teeth. I can estimate within ten pounds the amount of force a patient can exert with his jaws.

*Question:* The more you cut away from the cutting edge the more surface you are exposing, and would not pressure brought to bear upon that by mastication break the tooth?

*Answer:* There is not much danger, however. This portion of the labial and lingual wall is in mesial and distal incisal; if the

cavity should include one-third of the tooth it should be carried to the nearest developmental groove. All grooves are lines of weakness, and if you cut the labial wall approximately to that groove and leave enamel, it will be so weak that it will be apt to cleave. So it is my practice always, where the angle is gone, to carry the labial and lingual wall to the nearest developmental groove. It usually involves one-third of labial surface. This is a very important thing to know; in examining the developmental grooves under the microscope this fact is impressed upon you.

*Question:* How would you modify this formation if cavity extends a little further over to median line of tooth.

*Answer:* I should carry out the same kind of preparation, and cut a step to carry it out to that point. I should use a little step to avoid leaving weak enamel at the incisal. It is not for retention; but to protect cutting edge, and will not show at labial surface.

*Question:* Can you condense into a groove made with an inverted cone as well as one made by round bur? *Answer:* Yes.

*Dr. C. J. Siddall:* There are cases where we have extreme thinness, and in such the only place where I should differ would be to cut the step at the incisal edge, and not as essayist said, bring it to the developmental groove on both labial and lingual, and if decay extend further, carry it across further; but I would bring it across and anchor on the lingual. If there should be no dentin in the tooth at that point I would carry it down a little further in incisal angle, provided there were plenty of dentin, but there are teeth in which this is not practicable. I agree with essayist that square grooves are the best.

*Dr. J. N. Crouse:* In teeth which are decayed so much as to necessitate extending to a considerable distance over edge of the tooth beyond the developmental groove, I carry filling over cutting edge and use No. 60 platinized gold.

*Dr. W. H. Dorrance:* It is a well-known fact that a square line or angle is always the weak spot in any structure; at the same time I recognize that the proper condensation of gold is obtained in these cases without the strain caused by spreading of gold; therefore I entirely agree with the essayist. As to the point made by Dr. Crouse, my experience has been that a filling made in this manner must be very thick; even platinized gold will force the plates of enamel apart.



*Dr. N. S. Hoff:* The objection I have to such preparation of cavity is, that in cutting these grooves with square angles you threaten the structure of tooth. It doubtless secures better anchorage for filling but at the sacrifice of tooth substance; and that is one objection to this sort of preparation, it subjects enamel to a strain in many cases which it will not stand. In reference to the objections that Dr. Harper makes about filling round grooves, I fill the grooves lengthwise or axially, and not crosswise. It is easier to fill a round hole than a square one. We can condense the gold into the round groove a great deal easier than into the sharp angles.

The illustration used by Dr. Harper does not fairly represent the conditions of a properly prepared cavity. He illustrates an attempt to fill a single shallow groove by condensing the gold laterally, when the fact is that we have two grooves connected by body of filling, making a dovetailed groove into which it is easy to pack the gold.

Another objection: If you cut the enamel until the dentin supports it you leave such a broad surface to the border of cavity that when you adapt the gold to it the gold will rebound and leave the border and we do not get a close joint. We can relieve this to some extent by building up from the bottom of the cavity, contouring it out, but it is difficult to adapt the gold closely to such a large flat surface.

*Dr. C. P. Wood:* The objection to the angle is that it weakens the tooth. If you can have an angle one-third the depth of a curved undercut, why does it weaken the tooth any more than a round groove which is just as deep?

*Dr. Hoff:* It breaks at the angle, when it would not in a rounded corner.

*Dr. Wood:* The angular groove is so slight, only one-third the depth of bur, that it does not weaken the tooth any more than the round groove. I make my undercuts in a great many cases with a rose bur and square with a chisel.

*Dr. Harper:* The preparation of this cavity as explained has not been developed from any theory, but from the necessity for greater security in the retention of these fillings. Examine the failures closely as they come under your observation. It is not the angle breaking down where we tip it out, but it is in the incisal

third, and because of the lack of proper resistance to the tipping strain. You must get the maximum strain further down on the labial and lingual. It is said that a tooth is not so strong where we use square grooves as round. I will concede it, but that is not what causes these failures; they result from lack of security in this incisal retention which is reinforced in this method of preparation by shallow, square grooves. They can be one-fourth or one-half the depth of the round grooves and still be ten times as strong. There is no retention of the gold by a round groove. Any one who is interested in this subject can be convinced by preparing and filling two similar cavities, one with square and the other with round grooves, and then breaking the teeth and examining with a magnifying glass.

### HEMORRHAGE AFTER EXTRACTION.

BY W. M. BARNETT, D.D.S., LOS ANGELES, CAL.

In looking over some old copies of the *DIGEST* I see an excellent article in the September, 1898, issue by Dr. H. Prinz, on "Hemorrhage Following Extraction." I would call the attention of the readers of the *DIGEST* to a treatment which I have found absolutely satisfactory. With hypodermic syringe inject a few drops of three per cent pyrozone solution or peroxid of hydrogen in the apex of each alveolar socket and around the gum margin. The instantaneous expansion of either remedy stops all hemorrhage immediately. I tried this in one case where severe bleeding started six hours after the tooth was extracted, and all hemorrhage was stopped ten seconds after application. This treatment is excellent because it does the work without inconvenience to dentist or patient, which cannot be said of any other method known to me.

**METALLIC SHELL-DIE FOR RUBBER PLATES.**—Take two impressions. Varnish the better one and set aside to dry. In the other pour a model, to which carefully adjust Stuck's tin 32 to 34 gauge. Do this with the fingers, using spunk in foil carriers to bring to close adaptation. Cut and lap if inclined to pucker in places. When satisfactorily fitted, transfer the tin plate to the other impression, forcing it into every depression and undercut; using spunk, ball burnisher, etc., if necessary. Remove the impression and you have an ideal model. After waxing up the teeth, and when the case is ready for the flask, place another piece of tin over the whole, burnishing close to the teeth. Vulcanize between these two metallic surfaces and you will have a dense, tough, flexible plate with rugæ plainly defined, and results such as are not attainable by any other method — W. K. Slater, *Dental Headlight*.

## Digests.

### FURRING OF THE TONGUE IN HEALTH AND DISEASE.

J. Müller (*Munch. med. Woch. Aug. 14, 1900*) believes that the coated tongue so often observed in perfectly healthy individuals is largely due to excessive proliferation of the hairlike appendages of the filiform papillæ rather than to any extraneous deposit. Some persons have a greater tendency to this overgrowth than others, and it is found less frequently with advancing years. In disease it is not to be regarded as an indication of the condition of the alimentary tract as popularly supposed, though it is nearly always present in acute diseases, whether involving the digestive system or not. In chronic cases it is not nearly so constant, being often absent even in chronic gastritis. On examination of the deposit from a large number of cases it was found that there was no appreciable variation in character in different diseases, and that the average proportions of the epithelial cells, bacteria, mould, portions of food, and leucocytes in the mixture were fairly constant. In two diseases, however, viz., pulmonary tuberculosis and gastric carcinoma, the number of leucocytes is uniformly so large as to be a characteristic sign. The causes for the formation of this deposit are numerous. The mechanical element is of importance, for most patients are taking greatly decreased amounts of nourishment or subsisting largely on fluids, so that the normal scouring of the tongue through mastication and deglutition is interfered with. In many diseases there are increased formation and death of epithelial cells as a result of local congestion and serious infiltration—in fact, a desquamative catarrh which contributes largely to the coating. Changes in the bacterial flora of the mouth, as well as reflex nutritive and vasomotor impulses, also play their part, and, lastly, individual idiosyncrasies and the predisposition to increased growth and size of the filiform papillæ must be taken into account.—*Med. Rec.*

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**ORAL SEPSIS AS A CAUSE OF DISEASE.** By William Hunter, M.D. I have described cases identical with some of those referred to by Mr. Goodlee at a recent meeting, and shown—a point not even referred to by any, even the most recent writers on diseases of the stomach—that not only is the constant swallowing of pus a most

potent and prevalent cause of gastric trouble, but that the catarrh set up is not simply irritant but actually infective, and may lead in time to other more permanent effects—namely, atrophy of glands and chronic gastritis, and in certain cases even to suppurative gastritis.

This result is, however, by no means confined to and associated with any one mouth condition, such as pyorrhea alveolaris; and I especially desire to draw attention to this point, since I note that several of the speakers desired information as to what degree of pyorrhea was necessary to produce the various ill-effects referred to. I have to point out that for every case of gastric or other affection traceable to pyorrhea a hundred cases equally well marked are daily to be found associated with other dental and oral conditions of sepsis. In short, I deprecate this subject of oral sepsis and its effects being brought under discussion in connection with any one pathological condition of the mouth. The list of such conditions might be increased almost indefinitely. In my own experience they include not only pyorrhea, but stomatitis and gingivitis of every degree of severity—“erythematosa,” “pustulosa,” “ulcerosa,” “gangrenosa,” and indeed every other form of trouble, dental and oral, producible by septic infection, for which an appropriate adjective can be found. The list, moreover, includes in my experience others for which a suitable qualifying adjective cannot so readily be found, and which I may describe as “foul-septic-toothplate” stomatitis, “bridge” stomatitis, and “gold-cap” stomatitis; this latter group is, I venture to think, considerably on the increase in this era of conservative dentistry and high professional mechanical skill.

The important fact to be recognized is that one and all of these various conditions are septic in their nature and produced by pus organisms; that these organisms are invariably associated with every case of dental caries, however slight; and that the question of effect in any one case is a matter of individual resistance. The cause underlying them is oral sepsis of the most marked character. This sepsis, moreover, is of a particularly virulent character. For it is connected with disease of bone (that is, of teeth); and a somewhat extensive pathological experience has satisfied me that no pus organisms are so virulent as those grown in connection with necrosing bone.

No physician or surgeon would tolerate for a moment that a

patient with a foul septic ulcer, say in his forearm, should from time to time apply his lips to the ulcer to clean it. Yet this is—pathologically—precisely what happens in the case of patients with necrosed teeth and stomatitis. Moreover, the swallowing is constant, and goes on for years, unheeded both by patient and doctor.

I recently saw a patient, a lady, who for twenty-five years had suffered at intervals of every three or four weeks from most inexplicable salivation and subsequent intestinal trouble, so severe in character as to confine her to bed. She had worn for the same period of time a toothplate, which she removed irregularly, and cleaned only with a tooth-brush. She displayed a condition of stomatitis connected with necrosed stumps that was quite remarkable, overlooked as it had been all that time.

I saw recently another patient, also a lady (it is among ladies that the best examples of conservative and artistic dentistry are to be found), who for several years suffered periodically from nervous attacks, complicated by gastritis and curious rashes, the whole symptom complex being regarded as gouty manifestations. I was asked to see her in one of her rashes, and found it a typical blotchy septic rash. Only a month or two before her dentist, on the strength of the first of the papers below referred to, had insisted on removing a toothplate which had partially grown into her jaw, and which had been there for several years. In relation to gastritis and gastric catarrh such cases could be multiplied indefinitely.

The matter is important, however, not only in relation to gastritis, but in relation to the whole group of infections caused by pus organisms—*local*, for example, as tonsillitis, glandular swellings, middle ear suppurations, maxillary abscesses; *general*, for example, ulcerative endocarditis, empyemata, meningitis, nephritis, osteomyelitis, and other septic conditions. Whence do they gain entrance into the system? They are not ubiquitous, as was formerly thought, nor are they necessarily disease-producing from their mere presence; for example, on skin, in the mouth, or in the intestinal canal. But given the suitable conditions, namely, diminished resistance on the part of the tissues, or increase of dose on the side of the organisms, they are disease-producing. These are precisely the conditions brought about in long continued necrotic and septic conditions of the mouth.

It is probably impossible to keep pus organisms out of the mouth,

just as it is impossible to prevent occasional access of tubercle, typhoid and other infective organisms. But that fact does not deter us from taking the most exhaustive precautions to keep typhoid contamination out of our water and getting into our houses; or from initiating—as is at last happily the case—measures for preventing access of tubercle bacilli, whether through air or milk.

I think it urgent, in the interests of the many sufferers from gastritis, as well as in the interests of those suffering from pyogenic conditions generally, that some similar steps be taken with regard to the mouth—the chief channel of access, in my judgment, of all pyogenic infections. We may not be able to prevent their access into the mouth any more than we can prevent them adhering to the skin. But knowing as we now do their potential qualities, there is not the slightest reason why the mouth, so easily accessible as it is to local measures, should be made a perfect hot-bed for their development and propagation.

In relation to the whole group of internal conditions caused by pyogenic organisms, I consider there is a wide field of preventive medicine open by the exercise of oral antiseptics, a field that can be worked in with the most surprisingly satisfactory results, alike by the physician, surgeon, dental surgeon and patient. And by oral antiseptics I mean no mere rinsing of the mouth with mildly astringent and antiseptic mouth washes, but (1) the direct application to the diseased tooth or inflamed gum of carbolic acid (1 in 20), repeated daily for just so long as the patient will persist in keeping his necrosed tooth; still better (2) the removal of all diseased useless stumps; (3) the most scrupulous daily sterilizing by boiling of every plate worn, and (4) on the part of dentists the avoidance of too much conservative dentistry and the use of contrivances like “bridges” which cannot possibly be kept aseptic.—*Brit. Med. Jour.*

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**STARVING MALIGNANT GROWTHS ABOUT THE MOUTH.** By Dr. R. H. M. Dawbarn, New York. Read before N. Y. Odontological Society, March 20, 1900. Suppose you have a case of cancer of the tongue and of the floor of the mouth, that has gone beyond the stage where there is any hope for radical cure. There is not a more hopeless individual on the face of the globe. Under those circumstances I have in twenty-two instances operated, and I shall report the results on the 28th of this month.

In 1895 I operated for the first time with the idea of shrinking a tumor by starvation. I found a small round-cell sarcoma of the naso-pharynx, completely filling it. Patient had been treated thirteen times with injections of certain mixed toxins without doing a bit of good; on the contrary, they simply weakened him still further, so he refused to continue on this line. In this case I tied both external carotids, hoping to starve the growth. In the following September I found that that growth had shrunk to about one-quarter of its former size. The patient was in excellent health. But very slowly at first, and afterward much more rapidly, the tumor began to grow, again until by January it was worse than ever. Then I operated and cut out his upper jaw with the growth. It was the bloodiest operation I ever did in my life. It taught me a lesson as to the lack of permanent value of merely *tying* both external carotids. He would have died upon the table from hemorrhage if I had not given three liters intravenously of hot saline solution right at that time. After the first operation (ligation merely) I looked up the anatomy, and found that there were between thirty and thirty-five different ways in which the tumor might still be receiving a blood supply by small anastomoses. That explains why ligating alone will not suffice, and why more radical work is needed for permanency, namely, cutting out or excising the external carotids from Dan to Beersheba. The internal carotids, it will be remembered, do not supply anything except the brain (roughly speaking), and the external do not supply the brain, but all the superficial parts. After an interval of ten days I did the same thing on the other side upon the patient under discussion. Cutting out the whole carotid is a pretty savage kind of thought, but there is not much over five per cent of mortality. I will show soon some half-dozen of these cases, dating back quite a number of years. One of them I have sent back to report to Dr. Suriani. His condition is excellent; the growth has shrunk to small dimensions. It was a very hopeless kind of case, and I was afraid at first I might have sloughing of the nose and tongue, but it has not occurred in any instance. You get no change whatever in the appearance, except that the tongue looks temporarily rather pale. Evidently the normal tissues bear anemia better than do the malignant tissues. It seems as if this plan gave these poor fellows a longer lease of life than anything I know of. If you have some charity case with a

growth of the nose or mouth, send it along, and I will be glad to pay the hospital expenses myself, because only from dozens of these cases can one form a positive opinion. Suppose we have a case of sarcoma of the alveolar process of the upper jaw, not very far advanced. If I excise the superior maxilla, and it is in the case of a young woman, the chance of her entering into wedlock is reduced several hundred per cent. That is not to be forgotten. If the patient is under observation all the time, it seems to me to-day it would be justifiable to cut out her carotids. You cannot see the scar from this at a short distance, and it may be that the growth will not spread. It may even diminish, and it would not be such a mutilating and disfiguring operation as cutting out a large part of or the entire upper jaw, which in case of a malignant growth you otherwise would have to advise.

You may wonder how the collateral circulation is continued in a case of that kind. There are more vessels left than I like to see. Two will occur to you right away. After you cut out the entire external carotid, the infraorbital artery will carry it down into all the ramifications of the face; and this artery communicates freely in the orbit with branches from the deep carotid. Then there is the occipital artery, anastomosing by its princeps cervicis branch with the profunda cervicis. Here are two chief arteries, not to mention the minor ones. If there were a tendency to continue growing I would cut down and tie the infraorbital and the occipital.

(Showing specimen.) This is the upper jaw of a young man who was sent to me in 1896. Here is a tumor which has completely filled the antrum. I have removed part of the antral walls, so you can see how completely it fills it. When this case came to Dr. J. M. Howe there was a history that for four or five months there was a vague discomfort. When he examined it there was nothing to be seen except a little swelling of the roof of the mouth. More on suspicion than anything else he thought he would send it to me. I found the bony region, instead of being dense, could be penetrated by a pin or an ordinary sewing needle. Here in the roof of the mouth, where the bone is normally dense, I can, you see, shove a pin right in up to the head without any trouble, and in the same way above the alveolar process. If I had seen it two months earlier I would not have been able to do it so readily. If you can introduce the point of a pin so it will stick in the bone, you may be sure the



decalcifying process has begun and it is well to be on the lookout. I not only removed this upper jaw, but, as the prognosis is so very certain of its coming back, I cut out both carotids. Dr. Howe subsequently sent patient to Dr. Bishop, who made a half-set of teeth and a plumper for the cheek, and he has practically nothing to show for his condition except two delicate lines, one on either side of the neck. You can hardly notice the scar on his face.

I have recently shown to various societies specimens indicating the extreme importance of referring to some surgeon or pathologist suspicious cases. If in your patient you see a leucoplakia lingualis, or buccalis—the “wash-leather” appearance which in twenty-five cases out of one hundred results in epithelioma—or an epulis, or even a small tumor or an ulcer of the tongue, you should advise him to go to a surgeon as early as possible, because then an immense amount of good can be done, but later on perhaps almost nothing.

I now show you this specimen of a normal upper jaw so sawn that you may look into the antrum from its outside as through a window. Observe that the tiny natural opening is at the juncture of the roof and inner wall, consequently in antrum empyema we have to attack a much lower point in order to get drainage by gravity. The best way is, however, not the old-fashioned one of pulling out a tooth, but instead going in through the bottom of the antrum at the point where its bony wall is thinnest, i. e., at the region just above the first molar or second bicuspid. The best way to drain, if a tube is to be used, is to turn inside out for the smallest possible distance a soft rubber tube of such size as just to fit the opening you have made. This short collar upon the tubing may be retained in that shape by a stitch. The collar prevents the entire tube slipping in too far, and the lip will prevent it from coming out into the mouth.

Dr. LeRoy asks about the operation of entering the glottis, or the windpipe, for relief from particles of food having lodged there, causing stoppage of the passage so that the patient choked to death. Here is the “Adam’s apple,” or thyroid cartilage prominence, and we can all note upon our own persons that one inch lower is a small depression capable of admitting the finger tip. It is in this depression that we make our quick cut, passing at once through the cricothyroid membrane and into the air space, well below the glot-

tis, in which is caught the obstruction—a thing that every doctor, whether he be a dentist or other specialist, should feel capable of doing to give relief if any person is in his presence threatened with death from food or other foreign body in the larynx. Every year there are numerous deaths, in the aggregate, from this reason. If that happens in the presence of a doctor it is a lasting disgrace. With a penknife and by a single cut relief can be obtained. Having entered, turn the knife at right angles, and the patient can get a long breath; then, holding the finger over the wound, the patient can cough up the obstruction.

Tracheotomy is performed where you have comparative leisure, but laryngotomy where air must be obtained on the instant. Pack a bit of clean handkerchief in the wound to stop oozing, and when the patient gets home you soak some gauze with antiseptic solution and pack it in two or three hours to sterilize the cut, because the wound was made with a penknife and may otherwise become septic; subsequently suture both the divided cricothyroid membrane and the skin.

(In reply to a question.) You can make a diagnosis of a tumor or of pus in the antrum by use of a little electric light. You put it in the mouth in a dark room; it will shine right through the roof of the mouth, and the resulting appearance of the face reminds one of the pumpkin lantern of childhood. Normally the light passes through both antra, and then the bone and flesh in front, thus producing two large, roughly triangular bright areas, one beneath each orbit. But if one antrum contains a solid growth or a turbid fluid, that side of the face remains dark. In this operation you cannot make a mistake as to finding the lowest point if you go in at any point back of the cuspid teeth, but the nearer the first molar the better as a rule.

I pack in at the time of the operation a long strip of gauze rubbed with aristol. It is one of the best means of checking bleeding of the small vessels. I do not want to spend fifteen or twenty minutes stopping the oozing from the antrum. I leave this gauze in twenty-four hours. There may be a large blood-clot filling the cavity if you do not do that. If you find bare bone (and these are often tubercular cases) you must scrape, and then use dry gauze packing. The aristol gauze is the best in that case. If it is suppurative, but not a tubercular case, I select either daily douching (and use of a

short rubber drainage tube) or else a dry gauze packing, changed every other day. The patient soon learns to wash it out for himself with a fountain syringe, but he can less easily do effective gauze packing.—*Cosmos, Aug. 1900.*

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**FRACTURE OF THE SUPERIOR MAXILLA IN A MAN 70 YEARS OLD WITH RECOVERY.** By Vida A. Latham, D.D.S., Rogers Park, Ill. Read before American Medical Association, June 5-8, 1900. It may be asked: Is the dental surgeon, unless possessing a medical and dental qualification, capable of taking entire charge of these cases, especially as the injury is usually severe and may have complications, as shock, hemorrhage, meningitis and septicemia? The position of a dentist has recently been decided in at least one of the states by the courts. The court maintained that by using the

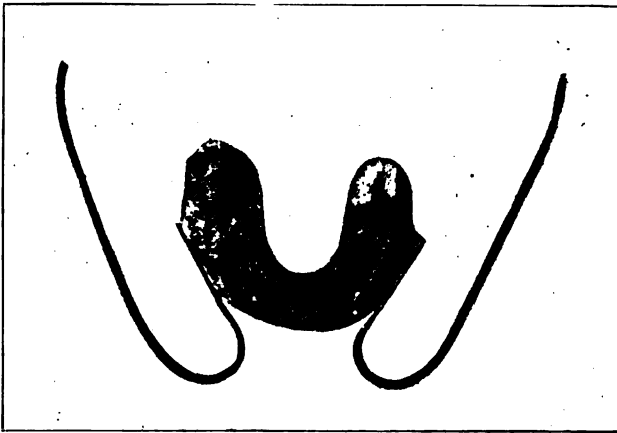


FIG. 1.—Lower Surface of Splint for Mandible to Fit In and Holes to Wash Through.

title "dental surgeon" or "dentist," he has the right to treat such cases without fear of being judged unqualified or incompetent. By some the question of not treating the case in consultation with a dentist and surgeon would be considered wrong. It may be asked if our dental schools are wise in not requiring a better course in oral surgery, with operative demonstrations on cadavers, etc., and at least giving a good training, so that a qualified dentist would be able to treat intelligently the usual class of cases belonging to the

head and neck, and not consider a "tooth" the only occupant of a patient's head.

The literature is meager on the subject of fractures of the superior maxilla. Is it from the rarity of such injuries? Possibly not, for in looking over the reports and bibliography, I soon came to the conclusion that more cases might be found if considerable time could be given, for the classification is so mixed as to make it nearly impossible to avail oneself of those reported. I will here give a brief summary of one of the reported cases, to show some of the difficulties in treating it:

J. W., aged 38, injured by the bursting of an emery-wheel. Fractures of left malar, nose, and four distinct comminuted fractures of the superior maxilla, two transverse, one in the middle line of mouth, and separation of nearly all of the alveoli containing the teeth and a depression of the same of about  $\frac{1}{2}$  inch. Seen in a semi comatose state, in which he remained for hours. Hemorrhage free and shock. On third day a vulcanite splint was attempted after the manner of the Gunning pattern, patient being etherized for the purpose. The plate had to be removed, as the fragments would not stay well in position at the end of the week. After consideration, ether was again given on the tenth day and the bones drilled, silver wire being used to coaptate the bones; a roller bandage and chin support were used. Liquid was given through a tube, and the mouth was washed twice a day with listerin. The wires were removed the fortieth day, the union being perfect. Patient talked and chewed fairly well, but the range of jaw motion was naturally lessened and there was loss of smell and taste.

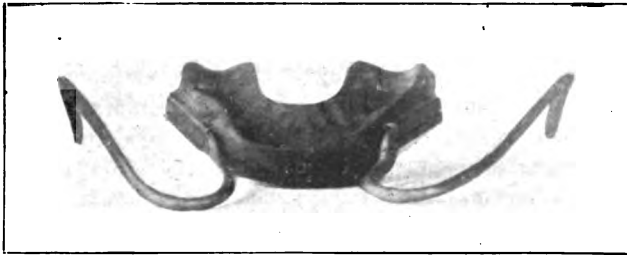


FIG. 2.—Anterior View and Upper Jaw Surface. Marshall Splint.

To the cases already reported I wish to add one recent one which came under my care during the past year: On Sept. 14, 1899, A. B., aged 71 years, a man of strong physique, good health and habits, received a fall of 25 feet while examining a building. He

was standing on a ladder which gave way and went to the ground under him. The patient fell forward, striking his face on one of the rounds of the ladder, nearly transversely at the level of the end of the nose, and also sustaining numerous bruises about the neck and shoulders and a sprain of the left wrist. He walked unaided into a house near by, and though considerably shocked was at no time unconscious. The immediate hemorrhage was very profuse from nose and mouth and continued about one hour. Dr. F. Keefer, who examined the face before much swelling had occurred, and Dr. Bertha E. Bush, of Chicago, found the upper alveolar margin and teeth freely movable en masse up and down as if upon a plate, though the mucous membrane of the mouth was intact except at the upper lip. The nasal and malar bones seemed uninjured and there was no orbital hemorrhage. The vomer, palate and inferior turbinated bones were comminuted, crepitus about the alæ and septum of the nose, resembling the "crackling feel of a broken eggshell." During the copious antiseptic irrigations of the nose and mouth, which were repeated every three or four hours in the first few days, the solution could be made to flow with some difficulty from either nostril into the mouth, but clots of blood and mucus, together with the extreme degrees of swelling which promptly ensued, effectually prevented nasal respiration. Deglutition and speech were difficult at first, but never quite impossible. The patient rallied somewhat slowly from the shock, and during the reaction developed a temperature of 101 F., which, however, subsided in less than a week. For twelve days after the accident no retentive appliance was adjusted, the treatment being directed solely to sustaining the patient's strength, relieving pain and keeping the injured parts as clean as possible by sprays, douches and gargles of antiseptic solutions and by wet compresses, principally borolyptol compounds and boracic acid. By this time swelling had much diminished, there was only a slight oozing of blood into the nose and pharynx, and a degree of hardening was perceptible about the floor and walls of the nares and the roof of the mouth. The soft parts were in good condition and no necrosis of bone had occurred. The mouth was habitually open for respiration, although the patient could at times breathe through his left nostril with effort. The face was markedly lengthened in the region of the injury, that is, the nose appeared longer than normal and a little flattened, and the

distance from the angles of the mouth to the eyes greater than before. The upper lip was longer (vertically), especially when the mouth was closed. The upper incisors dropped behind the lower on closing the jaws, a condition not usual to the patient previously.

None of the teeth had been loosened within the alveoli, but the entire row of upper teeth with the anterior portions of the superior maxilla moved freely up and down more than a quarter of an inch, a little lateral movement being also apparent. Pressure on either side of the nose beneath the orbits during the vertical and lateral movements of the upper jaw showed motion of the bony parts at those points, proving that the fracture of the superior maxilla had

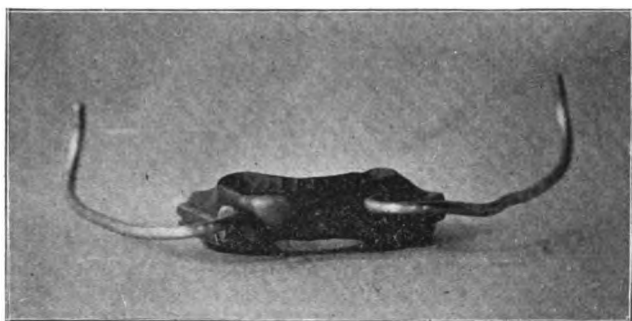


FIG. 3.—Marshall Splint. Anterior View. Slides for Wires.

been far above the alveolar border; that separation from some of their upper articulations was probable. Ten days after the receipt of the injury the patient was brought, by my advice, to Chicago, a distance of 100 miles. He was seen, in consultation with us, by Dr. John S. Marshall, who directed the further treatment. It appeared certain that bony union of the fractured maxilla could not take place unless the fragments were held continuously in position, the anterior separation being fully a quarter of an inch when the mouth was open. Support was not to be derived from any splint or bandage under the lower jaw, owing to the obstructed respiration when the mouth was closed. It was therefore determined to retain the loosened fragment in position by an interdental splint supported from the vertex, after the method described by Dr. J. S. Marshall, in his work on "Injuries and Surgical Diseases of the Face, Mouth and Jaws." On Sept. 24, 1899, the models were taken in modeling

There are certain points in this case which are of interest to the general as well as to the dental surgeon: 1. The disadvantage of trying to use bandages, occipitofrontal and occipitomenal, and the discomfort of a chin bandage. 2. The difficulty of respiration and danger of malocclusion, which latter must never be lost sight of and every effort be made to secure perfect or as nearly perfect occlusion as possible. 3. The lack of perfect support to the jaw if wired only, and the need in many instances of an anesthetic for the same. 4. The guide which the interdental splint gives to the mandible for correct occlusion, and hence chance to note any dropping or dis-



FIG. 5.—A.—Diagram of Points to Prevent Tapes Slipping.  
B.—Diagram of Bend.

placement of the splint. 5. The disadvantages of the plate are so few that they may be easily remedied, on account of its adaptability, and they differ with the patient's disposition, a, the feeling of tightness around the head, which may give headache if not adjusted; b, the slipping of the side tapes until the balancing point is found can be remedied by making a downward curve (Fig 5), bend or points in the wire, as seen in the diagrams. 6. The cap must be a good and accurate fit, the vertex leather not coming too low down to the ears. 7. The advantages of lightness, air through the mesh over the hair, use of non-corroding metal for the bars and sockets, or nickel-plating, the ease with which the plate may be slipped out and cleaned while the douching and irrigation is being

done. 8. The advantage of drilling several holes in the sides and through the alveolar part of the plate so that syringing with water and antiseptics can be done, when the plate is put in, to get rid of particles of food. 9. The greater variety of solid food that the patient can eat, as it can be crushed by the tongue against the plate. 10. The bilateral, almost symmetric injury, giving no point of support within the oral cavity, yet resulting in very slight alteration of the face after recovery. 11. This form of splint, a modification of Kingsley's, has this advantage over others, it can be vulcanized in an ordinary flask and the metal bars slipped in after plate is polished. 12. Lastly the age of the man, being the oldest recorded case of recovery.—*Jour. Am. Med. Assn.*, Sept. 1, 1900.

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**ACTINOMYCOSIS ABOUT THE MOUTH.** By C. A. Porter, M.D., Boston. Read before the American Academy of Dental Science, May, 1900. Though actinomycosis has been considered a relatively rare disease, it seems more probable that it is one which is very commonly overlooked. In its clinical aspects there is little that is characteristic. Though the course of the infection may make the surgeon suspicious, examination by microscope and culture is essential for a positive diagnosis. The object of this paper is to attract your attention to the possibility that a proportion of the cases ranking as alveolar abscesses may be due to this specific organism. Statistics of the relative frequency of this disease are really of little value. In 1892 Illich of Vienna gathered only forty-two cases in man from all that at that time were reported. Dr. Rührh of Baltimore has collected all the American cases, seventy-two in number, occurring in all parts of the body. During eighteen months' work in the hospital I have found eight cases of actinomycosis in about sixty so-called alveolar abscesses examined, and four cases have been found by other surgeons. Six cases of mine have occurred within three months, and four within one week; so we may conclude that the disease can not be one of great rarity.

I will pass about some photographs of cases, as well as a painting of the pus from the abscesses, which shows very well the gray or grayish-yellow granules which may be found in typical cases.

1. W. C., aged forty-five. Two months ago stuck a toothpick under his tongue and could not remove the whole of it. One week after this the submaxillary region began to swell. The swelling



was varied in amount; no pain; tenderness slight; no interference with talking, eating or swallowing. In the submaxillary region on the left side was an indefinite swelling about the size of a lemon; the skin somewhat edematous; at the bottom of the swelling was a small area where fluctuation could be made out; the skin over this slightly reddened. There were no glands in the neck. Under cocain a small incision was made. Sero-pus escaped, with a few grayish granules, which proved to be actinomycetes. On the following day a more extensive operation was done under ether. Incisions were made about the involved skin, and the whole submaxillary region thoroughly cleaned from below upward. The submaxillary and a few lymphatic glands were removed with the mass. Just under the jaw a dense fibrous cord was found, extending upward to the floor of the mouth. Within this connective-tissue tube lay the remains of the toothpick lost two months before. This was removed, the flaps loosely sutured, and an iodoform wick placed to the top of the wound. Under daily packings and iodine the wound healed solidly in five weeks, without evidence of recurrence. This case shows well the common connection of actinomycosis with some foreign body.

2. F. L., aged sixteen, presented Nov. 9, 1899. Teeth have always been bad; has had five removed from upper jaw. Second left molar decayed for some time; two months ago a small lump appeared inside mouth about root of this tooth; this gradually grew in size, without pain, and appeared on the outside of the jaw ten days ago as a reddened semi-fluctuant swelling the size of a quarter, surrounded by a hard and firm border. Inside the mouth a distinct induration could be detected, as of a connective-tissue sinus leading from tooth to external swelling. There was moderate trismus; no pain; tenderness slight; no glandular enlargement. A small incision revealed several granules of actinomycosis. Under ether the edges of this wound were excised and the walls of the cavity cut away with scissors; the base thoroughly curetted and painted with iodine. No sinus could be found connecting with the tooth. The wound granulated slowly, but was healed by Dec. 7, when there appeared on the outer side of the scar a small fluctuating area. This was opened and curetted; in the pus no colonies could be found after very careful search. Dec. 20 the induration within the mouth still persisted, but by Jan. 2 this too had disappeared, and there was

then no sign of recurrence. At operation many granules were obtained which varied in size from a pin-head to three times as large. There was considerable soft, cheesy-looking material in the wall of the cavity. Pure cultures from this case were finally obtained.

3. W. W., aged thirty, presented Nov. 13, 1899. Five months ago noticed lump inside mouth opposite last molar teeth on right. This grew larger, and becoming very painful, he went to hospital, where it was lanced, with immediate relief. In another month abscess reformed and face swelled to the eye. After lancing no further trouble until three weeks ago, when he noticed "pimple" on outside of jaw about the middle of horizontal ramus; this grew larger, with much swelling and pain. On entrance the whole right side of the face and eye were much swollen; trismus was well marked; over the center of the jaw was a reddened, fluctuating lump the size of a walnut. The surrounding tissues were hard and brawny. This induration ended very abruptly and gave place to general edema; within the mouth was well marked induration from first to third molar.

Under cocain the external abscess was opened and a hundred or more granules poured out, in thin sero-pus. Some of these were unusually large, almost the size of a small split pea. Under ether the infected skin was freely removed, with the base of the cavity down to sound muscular tissue. Again no sinus connecting with the teeth could be found. Closer to the jaw was a small cavity containing thick, yellow, stinking pus. The wound was dressed as before. Within three days the swelling had greatly diminished and the trismus was much less.

Dec. 10, almost a month after operation, the face suddenly began to swell again. Under ether an abscess to the outer side of the upper jaw was evacuated within the mouth; the pus was foul and contained many soft, yellow granules, appearing somewhat like actinomycosis, but under the microscope proved to be masses of mouth-bacteria and leptothrix buccalis. Just back of scar of first operation a "crater" was found, which when opened allowed the little finger to enter nearly to lower jaw outside of the last molar; the sinus was lined with very dense connective tissue and contained foul pus. Here one or two disorganized colonies of actinomycosis were found. In three weeks the swelling and most of the induration had gone; the sinus was healed, and the patient in much better

condition. March 20 showed no sign of recurrence; no induration; mouth opened normally; some exuberant gum about third molar. In this case the focus of disease was probably not reached until the last operation, and mixed infection undoubtedly played an important rôle. Pure cultures were finally obtained from the granules in spite of contamination.

4. J. S., six months ago broke left lower jaw just anterior to masseter muscle. The bone healed, but whenever he got drunk had soreness and swelling at point of fracture. Once a little pus was discharged into his mouth. He came to hospital with a small fluctuating abscess just under the skin. On opening this the typical granules were found. The abscess cavity was thoroughly excised; no bare bone was found. In two weeks the wound was healed. There has been no recurrence. The natural diagnosis was necrosis after fracture; yet no dead bone was found, and thorough excision stopped spread of disease.

5. P. S., aged forty. For two years has had trouble with left molar teeth, which are carious. Has had several small abscesses opened inside the mouth. In January left side of face swelled and large abscess was evacuated. Since then there has been intermittent purulent discharge into the mouth and jaw has been sore. Patient entered on April 15. The left side of face was much swollen; he could hardly open the mouth; in front of the masseter muscle, over the horizontal ramus of the jaw, was a reddened fluctuating abscess the size of a walnut. This was opened and found to contain the granules. Under ether the abscess cavity was dissected out, and a sinus found leading back to the second molar; here a small piece of dead bone was found. The sinus passed between the jaw and the masseter muscle, which was also involved in the disease. The whole cavity was thoroughly curetted and cauterized, the bad tooth extracted. In ten days the patient had only a small sinus left, which was granulating in a healthy manner. This case is a good example of the recurrent abscesses which occur until the disease has been thoroughly removed.

The infection seems to enter most frequently near the carious tooth, or is carried in by a foreign body through the mucous membrane of the mouth or pharynx. The process is essentially subacute or chronic, and the disease tends to advance by a sinus towards the skin. Infection is rarely pure, but is usually mixed

with ordinary pyogenic organisms or mouth-bacteria. It is rarely painful, and the accompanying pain, when it occurs, is due, I think, to the mixed infection. Clinically and under the microscope the disease is characterized by the formation of an unusual amount of dense connective tissue, which ends more or less abruptly at the periphery and infiltrates the adjacent muscle or fat. In the jaw the bone itself is rarely involved in human actinomycosis, though it may be thickened from periostitis.

It would seem that this surrounding connective tissue could later become infiltrated by the growth of the streptothrix and break down. In all the cases I have examined the inner wall of the cavity shows a clearly cut line of demarcation between the connective-tissue wall and the lining flabby, soft, grayish-red, granulating tissue. Glandular enlargement is conspicuous by its absence, and when present seems to be due to mixed infection. Metastasis seems to occur through the blood-current and not by way of the lymphatics. In serious cases the disease may progress down the neck, into the antrum or through base of skull.

Though a definite connection cannot be always demonstrated, it would seem that a sinus at one time leads from the original site to the superficial abscess. In one case at the last operation such a sinus was found leading directly to the carious tooth.

Trismus, though often present, is no more characteristic of this disease than of other inflammatory affections, though if the masseter were involved in the dense connective tissue, the jaw would probably remain stiff for a long time.

It is rarely possible, I think, to make a clinical diagnosis of actinomycosis—recurrent abscesses, without necrosis; chronic, painless, subcutaneous abscesses about the jaw, evidently not connected with tubercular glands, would lead to a suspicion of this disease. If these fluctuating areas were surrounded by especially firm and hard connective tissue, and a sinus could be felt under the skin, if there was little edema and swelling, perhaps a probable diagnosis could be made.

Examination of the discharge is of great assistance, but the mere presence of the so-called "sulphur granules" is not by any means conclusive, and no case should be considered as one of actinomycosis without competent microscopic examination. Small round masses of fibrin or tubercular *débris* sometimes simulate a colony in the

mouth or adjacent regions. Round masses of *leptothrix buccalis* occasionally appear very like a true colony. Even under low powers the resemblance is very similar. One of these masses presents a radiating arrangement, but under a higher power is seen to consist of vast masses of bacilli and the large, thick, non-branching filaments of the *leptothrix buccalis*.

In examining for actinomycosis gauze sponges which absorb the discharge should not be used. All bleeding, when possible, should be stopped before opening the abscess-wall. Unless badly contaminated actinomycosis pus appears usually as a clear, perhaps blood-tinged, slightly syrupy, sero-pus. Placed on a cover-glass, the granules vary in size from a millet-seed to the head of a large pin. They are usually round, with a clear-cut periphery; the color is gray or grayish-yellow, often suggesting a small pearl; the center is not rarely somewhat darker. The surrounding pus is non-adherent and the granules can be readily removed alone. Fluid should be examined *at once*, for these granules are found with great difficulty when the blood has once clotted.

With reference to treatment, two facts speak strongly for the self-limitation of the disease in the majority of cases. 1. Though it can not be a rare affection, few cases enter the hospital with advanced actinomycosis of the jaw, and it seems therefore certain that many recover after simple incision of the abscess, and even through a natural rupture of it. 2. It is surprising to find on microscopic examination of sections how infrequently the colonies are found in the walls of the abscesses, though the pus contained many granules. The surrounding connective tissue probably proves an effective barrier to the spread of the disease.

Simple opening, curetting, and drainage have proved efficient in many cases; though recurrences may be frequent, healing eventually takes place. Where possible, excision of the inner half of the abscess-wall or sinus is the best treatment. The danger from swallowing the granules, where the discharge empties into the mouth, is hard to estimate. Certain cases of generalized disease in the lungs, intestinal tract, liver, etc., occurred in which the organism gained entrance through the food or was swallowed, and therefore the surgeon should aim at making *external* drainage. This question is often a difficult one to decide. On the one hand, he wishes to avoid a scar on the face, especially in women; on the other, he

wishes thoroughly to eradicate the disease; for with recurrence the scars would probably be worse than from a single thorough and clean operation. The individual case and the severity of the infection must determine the choice between curetting and cauterizing the cavity with tincture of iodine or carbolic acid and a more radical excision. Iodide of potash, in doses of twenty grains three or four times a day, has distinctly influenced some cases for good, and should be used in connection with the local treatment.

I trust that when your attention has once been called to actinomycosis of the jaw you will be enabled to make an early diagnosis of the disease, and I feel sure a careful examination of chronic alveolar abscesses will show that the streptothrix actinomycotica is the cause of perhaps one-eighth of them.—*International, Aug. 1900.*

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FETOR FROM A DENTAL STANDPOINT. By B. Holly Smith, D.D.S., Baltimore. Read before Academy of Stomatology, March, 1900. The olfactory may be regarded as one of the so-called *artistic* senses, and is capable of training and education. People of refinement in all ages have striven to avoid offending it, and not infrequently efforts are made to contribute to the pleasure of the individual through this sense. The delicate perfume of the flower appeals as much to the artistic sense through the olfactories as the coloring of the gracefully moulded petals do through the optics. Persons of refinement and culture, of beauty, grace and good taste, should spread around them everywhere pleasurable impressions. How often do we see these charms negated, and social intercourse become burdensome because of a fetid breath.

The treatment of feter as the subject of a paper may not find favor in the eyes of those who recognize it only as a symptom of some disease and never as a special condition, the amelioration of which requires special care and treatment aside from that prescribed for the many conditions which have it for a symptom. To these let me say that I have selected the subject partly because of the existence of feter as a special factor in a number of cases of no little interest to me, partly because I think the dentist above any other specialist contributes to the amelioration of this condition, and more than all because I want to establish the contention that the patient must look to the dentist and make him responsible for such relief.

Even though the feter has nothing to do with the mouth or the

area usually included in the dentist's field of work, in the close contact which this specialist sustains to his patient he must be able to recognize its existence and should suggest the propriety of seeking treatment for conditions which the patient seems disposed to neglect. It must be conceded that while other specialists often direct their attentions to the amelioration of conditions giving rise to fetor, the dentist is the specialist most likely to detect its existence; and it appears to me to be his plain duty to determine its cause; if he can do so, to remove it, if not, he should direct his patient to the specialist best fitted to do so.

Fetor may be said to indicate always a departure from the normal, though its presence is not in every case coexistent with illness of a serious nature. Many persons seem oblivious to it, and medical attention is not always sought even when it is recognized. A mistaken sense of refinement often causes members of a family to conceal their knowledge of its existence from the sufferer, and when the patient becomes aware of it he is ignorant of its cause.

Among the conditions in which fetor plays an important part in determining the presence and progress of disease we may mention bromin, iodin, mercurial lead and phosphorus poisonings; caries of the teeth; loose or badly constructed bridges and crown-work; unsanitary plates and appliances; alveolar abscess, pyorrhea alveolaris; carious inflammations, specific and non-specific, of the mouth and appendages; fevers, constipation, diarrhœa; in fact, any departure from normal health and tone.

The mouth is lined by pavement epithelium, which is embryologically of the same origin as the epidermis of the skin, and therefore does not belong to the mucous membrane in the same sense as the lining of the stomach, bronchi, etc. There are numerous mucous glands in the mouth which open on the inner surface of cheeks, lips, and on the surface or beneath the tongue. The excretion of these is added to that of the salivary glands to make the complete fluid of the mouth. Many substances, both mineral and alkaloidal, which are absorbed into the circulation are eliminated by these glands as well as by the salivary, and in being secreted have their influence on the mucous membrane of the mouth. It is a well-known fact that mercury, after it has gotten into the circulation either through absorption by the skin from inunction or by hypodermic injection, is excreted by the mouth, and may give rise to a

stomatitis just as severe as if an irritant were applied to the mucous membrane of the mouth. This is in accordance with the well-known law that substances which are secreted or excreted by mucous membranes act on those mucous membranes.

We notice that these drugs generally cause death to the superficial layers of epithelia, and of course dead epithelium is at once attacked by the saprophytic bacteria of the mouth, notably the *staphylococcus pyogenes fetida*. Miller has shown that these dead epithelia and thickened mucous secretions scraped from a furred tongue show the presence of many rapidly-developing organisms. It is only, however, when these organisms act on the dead epithelia and secretions in some little pocket, such as those around the teeth, in the valliculæ of the circumvallate papillæ, or in the crypts in and around the lingual and pharyngeal tonsil, where the air has not free access, that odor occurs.

We find much the same phenomena occurring after the administration of some of the vegetable alkaloids, which are eliminated by the mouth. Atropin checks the secretions of the mouth, and if pushed is followed by furred tongue, etc. Other alkaloids also are excreted by the glands of the mouth, and in passing out act on the mucous membrane.

Now, I have no doubt that a similar explanation may be given for the furred tongue and bad breath occurring in many constitutional diseases, such as the fevers, etc. Modern investigation has shown that in the course of these diseases there are developed substances (generally the product of pathogenic organisms) called toxins, which are nitrogen compounds resembling in chemical construction and often in action many of the vegetable alkaloids; the greatest difference being that they are derived from animal instead of vegetable tissues. It seems to me much more logical to refer the furred tongue to the superficial necrosing effect of these toxins during their secretion by the mucous membrane of the mouth than to say it is in sympathy with the other organs of the body, stomach, etc. I do not believe it is a spreading of the condition of the stomach up the long esophagus to the mouth so much as a simultaneous affecting of both by toxins secreted from the blood by the glands and epithelia of both.

Again, the furred tongue of constipation should be explained in a similar way. It is only one of the many evidences which the



body shows of fecal poisoning, making its appearance here much sooner than in other portions of the body. It is not necessary to go into the subject of fecal poisoning to discuss what substances are absorbed from decomposing feces blocked up in the bowels. Chemistry of the animal products, or physiological chemistry, as it has been termed, which has been developed so much lately since Vaughn extracted his tyrotoxicon from milk and cheese, has shown us that many of the phenomena of disease are to be traced to these products of animal matter, namely, toxins in living bodies and ptomains in dead.

Normal feces contain, besides the residuum of digestion, substances which are excreted, or not intended for use in the economy, but are rather products which are deleterious, such as those in the bile, etc. Now, when the feces do not pass out in a reasonable time, we have in addition the products of putrefaction, which are even more deleterious. These are absorbed into the blood and carried all over the body, and the mucous membrane of the mouth in eliminating them is affected thereby.

Now, what is the cause of the odor imparted to the breath? These cases of furred tongue in fevers, fecal poisoning, etc. We cannot suppose that such substances may be excreted by the mucous membrane of the mouth without causing a mild degree of stomatitis. Many of the epithelial cells become opaque and lose their vitality, the secretions of the glands are modified, and these conditions afford dead material, which the saprophytes always present in the mouth develop. Whenever there is a space where these grow and the air does not get free access, as in the valleculæ at base of tongue, the pockets between gums and teeth, or even where the dead epithelia is so thick as to exclude air from the lower layers, gases may develop and impart an odor to the breath.

Not infrequently the adenoid tissue known as the lingual tonsil is the seat of cheesy deposit or abscess, which gives rise to fetor. The thick, ropy secretions which are often stagnant behind the folds of the velum palati, between the tonsils, or about the uvula, are often fetid. In the act of sneezing these are brought in the mouth, when the fetor is readily discovered. When the teeth are being cleaned with the brush, if the bristles be pressed far back on the tongue and palate, these secretions will be dislodged by gagging. Patients should be instructed to cleanse the mouth and appendages.

Following are some cases which might assist in applying the teaching of this paper: Miss M., cashier in a toy-store, had been in bad health for several months; trouble began with what was pronounced la grippe by the homeopathic physician under whose care she remained. After much suffering and intermittent employment the patient sought dental services for the relief of an aching tooth. On account of pronounced fetor a careful examination was made, suppurating antrum discovered, successfully treated, and patient restored to health. But for the fetor the antral suppuration would not have been discovered and prompt relief afforded.

Miss B., under my care, was a very handsome and vivacious young woman. In spite of the fact that her teeth were in good condition and the mucous membrane had a healthy appearance, her breath had a fetid odor. I called her attention to it so that we might cooperate in finding the cause. A superficial examination of the nasal cavities was made without discovering any cause for the fetor, and the throat seemed normal. She was habitually constipated, so means were suggested for the relief of this condition, and she was requested to call in about two weeks. Upon returning she reported improvement in habit, but there was the same close fetid taint to the breath. In a more careful examination of the throat and tongue I noticed that the circumvallate papillæ on the dorsum lingualis were very prominent and a spoon-shaped spatula scraped over this part of the tongue collected mucous of a most fetid character. With a delicate bistoury I cut through one of these papillæ, and found by the side of it an accumulated mass of very fetid matter. These fungiform papillæ were obliterated with electric cautery, which gave absolute relief of the condition.

A case in the practice of the late Prof. Winder: Mrs. L., a lady of position and wealth, had been under the care of a throat specialist for six months, being treated for catarrh of the Schneiderian membrane, with little improvement. She was obliged on account of extreme fetor to forego social pleasures; conscious of the infirmity, she apologized profusely for having to subject her dentist and friend to the ordeal of attending to her teeth. A careful examination revealed a pulpless bicuspid slightly tender to percussion. Its extraction was consented to; a diseased antral cavity was found and restored to health; the patient, from being a recluse and invalid, resumed her position of prominence in her family and social circle.

The fetor attending fractures is in proportion generally to the comminution; where spiculae or fragments are broken away these frequently necrose, and quite a characteristic odor is developed. Added to this a fetor from accumulated *débris* about the splint is to be combated. A fetid odor is often imparted to the breath from the socket where a tooth has been extracted recently. A partially erupted third molar about the crown of which the gum is swollen gives a like odor.

I had a patient call for examination whose breath was most fetid. He apologized for it on the ground that his stomach had been out of order. I soon discovered a loose bridge to be the cause of the fetor, but being interested in his diagnosis, I asked him how long he had been suffering. He said that about a month before he had noticed the bad odor upon arising in the morning. His doctor, upon examination of his tongue, said he would require some purgative medicine, which was taken with abundant effect but very little benefit. Since that he had been undergoing a regular course of medicine for indigestion, with not much improvement. He was restored completely by a resetting of the bridge.

On several occasions I have had occasion to warn patients of mercurial salivation, the presence of which I was led to determine by the peculiar fetor associated with this condition.

Your essayist has found permanganate of potash a rock of defence against fetor in all conditions, using it in weak solution, say one grain to the ounce, often having it decolorized by injecting it into suppurating cavities.—*International, Aug. 1900.*

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**COCAIN AND ITS RATIONAL ANTIDOTE.** By G. Lenox Curtis, M.D., New York. Read before Union Dental Meeting, Richmond, Va., May, 1900. In the majority of cases in which cocaine is used some excitement either pleasant or unpleasant is manifested. The pulse becomes rapid, the breathing quick and deep, followed by headache, dryness of the throat, pallor of the face, nausea and coldness of the extremities, accompanied by a tingling sensation; the skin becomes clammy, and often great beads of perspiration form; the eyes grow glassy and the pupils dilate. When a large amount of the drug has been ingested, convulsions, either tonic or clonic, may occur, or collapse may follow. Death is due to gradual cessation of respiration.

Cocain is a stimulant to the central nervous system. It increases cerebral activity and endurance of fatigue. For generations the natives of Peru and Bolivia ate cocoa leaves as a stimulant, and their soldiers were provided with them to chew when making forced marches. Scientific experiments prove that more work can be done after taking cocain. The heart's action is accelerated by it, owing to the direction of the drug on the cardiac muscle and stimulation of the cardiac sympathetic.

Paralysis of the vagus, as in belladonna poisoning, cannot account for the increased activity, for stimulation of the vagus in a case of cocain poisoning slows the heart, showing that the latter nerve has not been deprived of its function. At first, the blood-vessels are much contracted, which, with the rapid pulse rate, causes a marked rise in the blood pressure. The cause of the arterial contraction is stimulation of the vaso-motor center. Subsequently the blood pressure falls from peripheral vaso-motor paralysis.

The local effect of the drug is due to paralysis of the termini of some of the afferent nerves, particularly those conveying impressions of pain and touch, but the temperature sense does not seem to be affected. Cocain acts best on mucous membranes. In the nose it paralyzes the sense of smell as well as sensation, but has very little effect, if any, on the healthy skin. Schleich's method of infiltration anesthesia is probably the most satisfactory. I have found that a weak solution of cocain is especially applicable in work on the mucous membrane, but in operations on the deeper tissues, and in bone work, the stronger solution is more effective. I therefore use from a ten per cent to a saturated solution. The great advantage gained by employing solutions of high strength is economy of time in the operation, which is important. In from one to two minutes after injection the surgeon can proceed and operation be completed by the time a weaker solution would have taken effect. The most successful surgeons of to-day aim to consume the least possible time in operating, and thus lessen shock.

The opportunities for the use of cocain are numerous. It is effective in major as well as in minor operations. If more operators would follow Schleich's example, much of the discomfort and danger of general anesthesia would be averted. I predict that the time will come when ether and chloroform will be held in reserve as emergency drugs, and that cocain or some other local anesthetic will

supersede them. I am able to do fully ninety per cent of my work with cocain. The principal objection to it is its toxic effect; if that can be overcome by an antidote, surgery will forge ahead and many major operations become minor ones.

Cushing says: "Cocain is a protoplasmic poison. It destroys the protoplasm of nerve and organs, hence explains its local anesthetic action. When a solution of cocain comes in contact with other organs it destroys their vitality. Ciliated epithelial cells, leucocytes and spermatozoa become motionless. Cortical nerve cells lose their excitability. Many of the invertebrates are killed by even a short exposure to cocain. Movements of protoplasm in plants are also retarded or entirely suppressed by this poison." This doubtless accounts to a greater or less degree for the general languor that usually follows the use of cocain. In continued daily operations where cocain is employed, the strength and energy of the patient decline, and often a morbid condition exists.

A rational antidote cannot be expected to prevent protoplasmic poisoning or destruction. Operations are not usually done on the same patient every day, hence nature may be safely permitted to look out for local ill effects, which, to say the least, are never serious. A successful antidote must antagonize the paralyzant effect of cocain upon the heart, the blood-vessels, respiration, etc. It should comprise in its physiological action the merits of digitalis or strophanthus, belladonna, ergot, calabar bean, etc. In its effect upon the circulation and respiration, volasem, which is an extract of violet, resembles the principal action of these drugs. Its effect is manifested so quickly and surely that with it any required strength and amount of cocain can be safely used. Volasem neutralizes the general toxic effect of cocain, but does not interfere with its local effect. It stimulates the heart's action and contracts the arterioles. It stimulates respiration and raises the blood pressure. When administered immediately before cocain is employed it prevents the usual untoward symptoms by maintaining the respiratory and cardiac functions. I have found that where volasem was administered in five-drop doses every hour, until twelve doses had been taken, no appreciable action was observed; but when fifteen drops were given every half hour for two hours, its action upon the heart and lungs was similar to the primary effect of cocain, but none of the other cocain symptoms were observed. I have also noticed with sus-

ceptible patients that ten drops would produce similar results within a minute or two. These cases respond quickly to cardiac stimulants, and have none of the usual cocain-after-effects. I found, however, that hypodermic injection of cocain would immediately restore the equilibrium. Thus I am led to believe that these two drugs antidote each other.

To show the efficacy of volasem I will relate some clinical experiences. Mrs. A., aged forty, upon whom I had previously operated under cocain, was to be operated upon again, this time for removal of a tumor. When ready, I discovered I had no volasem, but concluded to proceed under a four per cent solution of cocain. I injected four drops and waited for its effect. In about two minutes the patient showed unmistakable toxic symptoms. Aromatic spirits of ammonia were quickly administered, and by the time her clothing was loosened alarming symptoms appeared. The patient being unconscious, hypodermic injections of digitalis, whisky and strychnin were given. Most of the extreme symptoms were manifested. Respirations had fallen to seven a minute; the radial and temporal pulse ceased, and the heart's action was scarcely perceptible. It required an hour's hard work to restore the patient, and it was several days before she was in a normal condition. Two weeks later I went on with the operation, and first giving five drops of volasem, and a minute later injecting thirty drops of a ten per cent solution of cocain into and about the tumor, I completed the operation in twenty minutes, the patient showing not the slightest effect of the cocain. She expressed her astonishment at the virtue of the antidote.

Another phase of the toxic of cocain, and the quick action of volasem, was recorded in my discussion of Dr. Foster's paper on cocain poisoning. The patient was brought to me by his dentist; and as the case was urgent, I concluded to operate with the doctor's assistance. I prepared the volasem, but forgot to give it, and injected half a dram of a saturated solution of cocain. Within a few seconds the patient complained of a peculiar sensation pervading his entire body and a tingling in the extremities. He became unconscious and was soon fighting like a demon. It was with great effort we prevented his doing us bodily harm, when suddenly toxic convulsions occurred. I turned to give him more vosalem, when I discovered I had not given him any. Prying open his mouth I

poured the ten-drop dose down his throat. After the lapse of a minute the muscular rigidity relaxed, and within another minute restoration was complete. The patient stated he had no knowledge of what had happened. I finished the operation, and within an hour he went to his home, apparently none the worse for his experience.—*Dominion Jour.*, Sept. 1900.

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**PRACTICAL POINTS.** By J. B. Hodgkin, D.D.S. You wish to cut a block, as it is often the case that one tooth must be left off. Press a thick-bladed knife into the space between the teeth, and the block will usually split quite straight.

Alcohol used with a little cotton on an excavator will cleanse the pins about artificial teeth better than hot water, and should follow the water. It does not dissolve the wax, but separates it from the pin. It is quite surprising to see how one may get off little unnoticed bits of wax in this way after a very careful washing with water. If the water is poured on from a height it does better work.

Plaster is quickly dissolved in water, and a cast left in water a few days loses its fine lines. Indeed, every washing does something towards wearing away the cast.

Not every one seems to know that a flask can be packed and opened for inspection by placing a piece of rubber-dam over the model. I have heard dentists say that they always knew just how much rubber to put in, and had no occasion to cut vents. Not all are so clever, and to those it is a help, in cases of doubt, to be able to open the flask and see just what is there. If too much, a little can be cut away; if too little, add some. If the rubber-dam, after using, sticks to the packed-in rubber, wind a little cotton on an instrument, or take a small, clean paintbrush, and touch with gasolin the edges. It then separates readily.

A bit of cardboard makes as good a vacuum cavity as anything. If it refuses to stay in place, wet it and it can be molded to fit the curve of the model. If you are afraid it will slip, make a little pile of rubber just over the place where the cavity is and, in closing, the rubber will touch that point first and hold cavity-former in place.

Close rubber flasks in a disused celluloid apparatus, and with dry heat. The dry plaster is much stronger and not so likely to break as is that kept wet. Of course care must be taken not to overheat the rubber, but it is quite remarkable how much more easily a flask

closes dry than wet. Moreover, the joints are not likely to spread apart and thin sections are not liable to crack.

A little vaselin spread over the plaster makes a good parting medium, and washes off clean. Shellac sometimes gets on the teeth or about the pins if much boiling is done, and is troublesome to get off.

If heavy tinfoil is used in vulcanizing it can be polished nicely with a little absorbent cotton. If foil is used care must be taken not to touch it with the fingers after the final cleansing, and the rubber is best packed with something else than the bare fingers, as they leave a stain on the plate.

If tinfoil is used on the model, and it is a good plan to do this, do not put it on until the flask has been closed and reopened in the way described above. After all is ready to finally close, coat the model with shellac, and before this is quite dry carefully press down the light tinfoil with a lump of raw cotton, trying not to tear the tin. The kind of tin used for fillings—say number six—is best for this. You can not pull it off after the case is vulcanized, but by placing the plate in muriatic acid the tin is easily dissolved off, and the acid does not hurt the plate. A plate made between foil in this way is stronger, and the labor saved is great.

You may wish to reproduce on your vulcanite plate the rugae of the mouth. In that case take a good impression of the best mouth you can, one with the rugae well developed. Make a plaster cast of this and let it dry well. It will be better if this is made of coarse plaster as it is stronger. Dry the cast until it rings like a piece of metal. Cut a piece of the heavy tin foil about the size of the lingual part of your waxed-up plate, press this down on the rugae. A piece of sponge is good here—follow it into the rugae with a burnisher, turn it over, fill up the depressions on the convex side with hard wax, place this on the wax of the plate and carefully adjust it. When the piece is separated the reverse of the rugae will be seen in the tin, and when the plate is vulcanized you will have a rubber plate with rugae nicely brought out, and much better than any attempt at carving.

Sometimes, in spite of all care, we find a tooth a little loose on the plate, this especially with plain teeth, where the rubber has but little hold. When you pack the rubber cut a little black rubber, pack a bit of this between and around the pins, and it will prevent the



loose tooth business. It is better, too, as it is much stronger than any red rubber, and so the pins are less likely to break out of the plate. Barring the color, this rubber is so much stronger that it is a question if all plates should not be made of it.

You have mended a case, and are annoyed that the joints look dark and ugly. It is a stain that wears out after a while, but it disfigures the plate. Touch the dark places with a very little nitric acid. It dissolves off the stain. Wash off the acid, and you will be pleased with the result.

Mend your cases with a specially dark rubber. As the old rubber turns darker, even if light at first, the mend will look more like the original plate.

Rubber solder is always useful. You can make this with gasolin just as well as with more costly solvents, although I have seen chloroform recommended.

Very extensive breaks in plaster casts may be mended with cement. Mix it very thin and have the cast well dried. If wet it will not stick.

Many troublesome lower full cases can be helped greatly in their staying qualities by taking first as good an impression as may be, making a plaster cast of this, and a "special" tray of gutta-percha, carrying this far down into the space between the tongue and the jaw at the place formerly occupied by the molars. Make all this loose, and take a plaster impression, carrying it far down in this space. Extending the plate down at this point (a space at which no muscles are attached) prevents the lateral sliding. Some cases which I had almost despaired of have been greatly improved in this way.

Little things help. Cut the bibulous paper into little squares. Punch a hole through the corner of the square. Run a bit of wire through and give it a twist. Hang this at the back of the chair where your hand will reach it easily.

A uniform set of bottles for medicines looks nice, but I find that by having different-sized bottles, and some of different color, the eye-strain is greatly lessened. My alcohol—that which I use occasionally for washing out a cavity—I put in a little blue bottle which a glance at the cabinet shows, and I am not fatigued with looking over a dozen or more of the same-sized bottles for the one wanted. So with other drugs.

Bear in mind that shades of teeth look different in different lights. All will testify that the teeth sometimes selected at the dental depot seem vastly different when seen by the office light. Again, bear in mind that if you have had rubber-dam on a tooth and have just taken it off, that tooth is not available to match a crown by, as the color fades out by drying and comes back slowly.

Again, artificial teeth reflect light much more than natural ones, and this is to be considered. Especially by artificial light is this the case, and a set of teeth which may look fairly well by daylight will glitter horribly under gas. Polishing of the glossy enamel will help this. Some teeth, as the Dental Protective, can be ground away, and then polished with pumice and the glitter so taken off.

Keep at hand always a little crystal silver nitrat. Not the stick or pencil sort, but crystals, and touch those most sensitive places along the margins of the gums. It will do more good than anything I know of, and in many cases will stop the decay. I have a case in mind now of a gentleman, just recovered from typhoid, whose teeth were so sensitive as to be untouchable, all along the margins of the gums being almost incapable of being brushed. These were touched with silver nitrat, and although I fully expected to find cavities developing, yet they were as good as ever, saving a slight discoloration.

It may be that in New York and Boston teeth capped over for crowning with cement do not die, but down our way they have that trick. Even teeth which have been worn off, but with pulps in good condition, so far as one may judge, die with caps cemented over them. To remedy this, put on dam, paint over several coats of shellac. Silver nitrat will possibly do.

Again: Not every one knows that to paint shellac over a tooth on which you are to place a band, as in regulating cases, helps to hold the cement. Paint on varnish, wait till it dries, and then cement the band. It sticks like glue.

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**OXYPHOSPHATE OF ZINC.** By Sylvanus Davis, D.D.S. Paper and clinic before Colorado State Dental Association, June 13, 1900. It is easy to understand why there are so many different opinions about oxyphosphate of zinc; there being so many formulas, each may have its peculiarities, but just why so many report disastrous results is not so easily explained. Perhaps the veil would be

lifted if we could see how the combination between the liquid and powders is made, and what rules are observed in the insertion. These are important points.

In an effort to solve the problem, as to whether or not a phosphate filling acts injuriously upon living pulps, and in order to clear up some of the myths of dentistry, a query was sent out by Dr. Ottolengui to prominent men in the profession. Some twenty odd have replied, and taking these replies as a whole, the novice would naturally say that it is a good thing to avoid. The majority appeared to believe that the phosphoric acid perhaps was a disturbing agent, and this has led to the practice by many of interposing a protection between oxyphosphate and dentin.

The scarecrow, arsenious acid, has disturbed many, but that idea is pretty well exploded, and the man who advanced it without positive proof should have been sent to purgatory. It is an impossibility for oxid of zinc to contain arsenious acid after it has been calcined sufficiently for our purpose. Arsenious acid is vaporized at about 400° Fahrenheit, while to properly calcine oxid of zinc it should be kept for two hours or more at a heat of about 2200°. I have put arsenic in the zinc, then calcined, used Marsh test, and not a trace of arsenic could be found. It has been suggested that the heat generated during crystallization is a disturber; this is not likely, as it rises only a few degrees and lasts but a short time. Thermal shock has been mentioned; it is said, that it has been proven to be a conductor of electricity more than half as good as gold; gold at 1000, oxyphosphate 584. I will admit that it requires some temerity to take issue on this point, especially when the exact proportion of conductivity is given; nevertheless, I have given this a thorough test, and it proves to be as poor a conductor as tooth-bone or ivory for all practical purposes.

Many years of experience with oxychlorid of zinc and oxyphosphate prove that both are perfectly compatible with living tooth structure; both materials have their place. I give the preference to oxychlorid for filling pulp-chambers and capping pulps. Some of the phosphates contain for the powder, soda, borax, silica, glass, the base being oxid of zinc. Some of these ingredients are worse than useless. The liquid is phosphoric acid in some form. The difference between oxychlorid and oxyphosphate is in the liquid. The clinic I give you to-day will be with phosphate composed of

calcined oxid zinc and glacial phosphoric acid. It can be mixed so that it will have different degrees of acidity, or it may be alkaline or neutral. I wish to call your attention to this particular point, that there is no free acid at any time before crystallization or after (if properly mixed). In practice if you should wish some of the acid set free, it is easily done by leaving the cavity moist; this may be desirable to produce a vascular action. The secretions in some mouths appear to be much more destructive to the material than in others. I believe it is more in the combination and manipulation, the pressure used making the phosphate more dense, therefore offering greater resistance to secretions.

Admitting that a small quantity of phosphoric acid is set free by moisture, pressure or improper mixing, is it very destructive to pulp and tooth-tissue, as several of these writers state? A caustic burns or disorganizes animal substances. Dilute phosphoric acid although evaporated to greater density, is quoted in the U. S. Dispensatory as strongly acid but not corrosive as are other mineral acids. By placing it on my tongue or gums I get nothing more than an acid taste. While oxid of zinc can not, as stated above, contain arsenic, there is another source from which it may enter our oxyphosphate; through impure glacial phosphoric acid.

*Clinic.*—A practical demonstration is more convincing than theorizing. 1. Showing that it is not a caustic by mixing thin and spreading on arm, letting it crystallize, not the slightest impression being made. 2. Showing that by mixing certain proportions of liquid and powder it could be made either acid, alkaline or neutral, but that no free acid is present before or after crystallization; also that the acid could be set free by bringing it in contact with moisture or pressure. 3. Showing that the heat generated by crystallization was but four or five degrees and did not last longer than two or three minutes. 4. Showing that it is as poor a conductor as tooth-bone or ivory; as good a non-conductor as is needed for all practical purposes. 5. Showing specimens which had lain for five days in baths of saliva, water, alkali, hydrochloric acid one-fifth, and anilin. The anilin had not penetrated the oxyphosphate, nor had the other baths affected it. 6. Showing that the oxid of zinc can not contain arsenious acid after being calcined sufficiently for our purposes, that taking about 2200° F. while arsenious acid vaporizes at 400°.

Combining of powder and liquid and placing in cavity are the important points. Line cavity with phosphate and let it harden so that pressure of filling will not set acid free. Oxyphosphate to resist secretions should have heavy pressure.—*Items, Sept. 1900.*

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**ARTISTIC REPAIRING OF DEFECTIVE MODELS.** By H. A. Pullen, D.M.D., St. Louis. Models of irregularities of the teeth, on separation from plaster impressions, are often found defective in some particular, perhaps only slightly, yet enough to detract to a considerable extent from their appearance, as viewed from an esthetic standpoint. These imperfections may not be due to a faulty impression, in fact, the latter may be perfect, and the model obtained therefrom nearly ruined by the neglect of some slight detail in the processes following the taking of impression.

The more common defects noticed in the model with the causes therefor enumerated, are: *First.* Air-bubbles. Cause, air not forced ahead of plaster in pouring impressions, but buried beneath it. *Second.* Numerous indentations on the surface, due to careless use of the knife in separating. *Third.* A honey-combed appearance of the teeth with crumbling and loss of cusps in separation, especially in the incisor and bicuspid region, due to the use of too thinly mixed plaster. *Fourth.* Fractured or imperfect frenum, caused by enclosure of air-bubble in its impression, or carelessness in separating. *Fifth.* Fractured teeth or cusps, cause: (a) The attempted removal of too large blocks of the impression in separating. (b) Application of force in the wrong direction in separating. (c) Cavities or undercuts. (d) Adherence of the teeth or cusps to the varnishes of the impression. (e) Dropping of the model. *Sixth.* Transfer of the varnishes of the impression to the surface of the model. Cause, too long an interval between pouring and separating or too thick varnishes. *Seventh.* Lumps of superfluous plaster on various parts of the model, due to loss of corresponding parts of the impression. *Eighth.* A roughened appearance of the surface of the necks of the teeth, with noticeable superfluity of contour, due to the non-removal of soft and hard deposits on the teeth before taking the impression.

Preliminary to the repairing of a model that may be defective in any of the above-mentioned ways, one should be provided with an artist's camel's-hair brush, No. 2; a double-ended wax spatula, with small blade sharpened on one edge; a receptacle for water; and a

glass slab with a small pile of plaster on one corner of its surface. To repair air-bubbles, the first defect mentioned above, the brush is saturated with water and the plaster in and around the air-bubbles moistened several times with it, when a small mix of the plaster and water to the consistency of milk is made with the brush and quickly transferred from its point to the bottom of the bubble, repeating until it is filled, when the correct contour and a smooth surface are obtained by a twisting, wiping motion of the nearly dry brush over the surface. Any indentation on the surface of the model may be filled in this manner.

The third and fourth defects require more skill and a knowledge of the minute anatomy of the parts in order to be able to restore by this method an incisor, for instance, which has crumbled to pieces; but after sufficient practice even such a delicate part as the *fraenum labii*, which seldom escapes fracturing in separating, may be built up if its attachments can be seen. Care should be exercised in carving the groove that enough of the approximating fractured surfaces be left towards the labial surface to insure perfect adjustment.

Varnishes from the impression adhering to the cast may be removed by washing with cotton saturated with alcohol.

The seventh and eighth defects require the use of the wax spatula previously mentioned, the large blade being used to remove plaster on the teeth and other portions of the model so disfigured, while the small sharpened blade is essential to the removal of the thin layer of superfluous plaster contiguous to the festoons of the gum, also in carving out any surplus plaster from the embrasures of adjoining teeth, and the cusps of bicuspid or molars which are imperfect. Any attempt at carving beyond the shaving off of superfluous plaster quickly shows its artificiality and should be avoided.

Fractured teeth or cusps have been usually repaired with cement, which is unsightly against the white background of the model, especially in a photographic reproduction.

By manipulating the plaster as in filling an air-bubble, it will serve as a good substitute for the cement in all cases. As it is almost impossible to force plaster of any consistency into a crack, such as is visible on adjusting two fractured portions of a tooth together, it is advisable to widen the crack to a groove—linguolabially for instance, on a fractured incisor, so that the plaster may readily flow into it, when on restoring the contour of the lingual

surface, the crack on the labial surface may be touched lightly with the brush saturated with the thin plaster, and all traces of the fracture will disappear and a firm union result after drying.

The requisites for the successful use of this method of repairing with plaster are—a continually moistened surface of that portion of the model needing repair; frequent small mixes of the plaster to about the consistency of milk with the brush upon the glass slab, sufficient quantity for one mix being obtained by first saturating the brush with water, and then quickly mixing with it all the plaster that adheres to the brush on touching the surface of the pile of plaster on the slab; finally the application of this thinly mixed plaster from the point of the brush to the particular portion of the surface of the model requiring repair.—*Items, Sept. 1900.*

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**GINGIVO - STOMATITIS WITH ALBUMINURIA.** By Chas. Lee, Paris. Read before the International Dental Congress, at Paris, August, 1900. First case was a dressmaker, about 54. She complained of pain in the mucous membrane of the mouth, which was accentuated by mastication, and attributed her illness to the bad state of her teeth. The first examination revealed much tartar, numerous carious teeth, stumps, and teeth bared from the gums. She wore a plate with six upper teeth. There were also numerous ulcerations on the lower lip, on the inside of the cheeks, on the sides of the tongue, and on the palate. Besides these she presented several local symptoms, such as pain on masticating; thick abundant glutinous salivation, especially in the morning; breath was fetid and repulsive; she had lost all sense of taste, and the submaxillary ganglions were slightly swollen and indurated. Her general symptoms included headache, want of appetite, light diarrhea, indicating a feverish condition. Further examination disclosed the fact that she had Bright's disease, and hypertrophy of the heart.

The second case presented certain points of analogy with the first. This patient, also a woman, was 58 years of age, and had four patches of ulceration in the mouth, two of which were on the palate on a level with the second left molar, which was carious; the other two were situated one on the labial surface of the lower gum on a level with the first molar on the same side, and the other on the same gum, level with the right lateral incisor. The areas

of these ulcerations varied from 5 millimetres to 1 centimetre, their surface being of a stale gray, and their edges irregular. She also complained of intense pain; salivation was abundant, but less in quantity than the first case, the breath was fetid, and examination showed she also was suffering from albuminuria.

On the basis of these two cases M. Lee set out to investigate the connection between Bright's disease and gingivo-stomatitis, and the results of his investigations led to this important conclusion—that uremic stomatitis, like the stomatitis of diabetes, like that of pregnant women, and like that of many other states, is a septic condition, which has for its sole and only pathogenic agency buccal polymicrobism. The two cases given above were suffering from albuminuria, which by enfeebling the economy had destroyed its equilibrium. The body in general, and the buccal cavity in particular, were in a state of morbid receptivity, and the infection naturally sought the weakest part. Now in the two cases the most weakened part was the buccal cavity, and in consequence of the bad state of the teeth polymicrobism was easily set up.

The conclusions arrived at are set forth by the author as follows: (1) Ulcerative membranous stomatitis in patients suffering from Bright's disease is a polymicrobial septic stomatitis which may be classed with the variety of septic stomatitis described by Dr. Lebedinsky; (2) such a stomatitis may pass through various conditions, it may be erythematous, then ulcero-membranous, or even gangrenous; (3) the stomatitis of albuminuria commences almost always on a level with carious teeth or infected stumps; (4) those who are suffering from albuminuria may safely avoid stomatitis if their mouths are kept in a hygienic condition.—*Brit. Dent. Jour.*, Sept. 1900.

**SENSITIVE DENTIN.**—Two doses of chloral hydrate, of 10 to 15 grains each, taken one the evening before on retiring, and the other next morning before operation begins, is better than cataphoresis or anything else I have ever tried. Dr. H. E. Beach suggested this several years ago, and he is entitled to the honor.—John T. Crews, *Dental Headlight*.

**SIGNIFICANCE OF TEETH IN DERMOID CYSTS.**—Dr. S. W. Bandler (*Weiner klin. Rund.*) disputes the assertions of Wilms, Pfannenstiel, and Pick that teeth found in a dermoid cyst are necessarily of pathogenetic origin. He believes, from his study of twelve cases, that cephalic parts found in a dermoid cyst are of ectodermic origin, and are not due to an unimpregnated ovule, the development of whose cephalic end inhibits the growth of the rest of the body.



## Letters.

### NEW YORK LETTER.

*To the Editor of the Digest,*

MR. EDITOR: October has seen the return of most of the absentees, and from the coat of tan which most of them carry the vacation must have been spent in the country.

The First District Society convened Oct. 9, with a good attendance of young practitioners, but the graybeards were noticeably absent. There was a lively discussion on root-filling, and we could not help noticing how many men think eventually all others can be brought to their method of practice. A universal scheme for filling roots is just as impossible as one for filling teeth generally.

The Galveston dentists were practically sympathized with; \$126 was raised and ordered to be telegraphed to them the next day. This is right. These generosities stand over against the opprobrious epithets that have been hurled at us. Never have we seen a time when a worthy appeal was not quickly responded to by the profession.

The Odontological Society held its first meeting since the summer vacation, with a very good attendance. Dr. Herschfield of Paris reported a paper, giving a description of how he corrected an irregularity of a superior incisor by an inlay. The palatal and labial surfaces were turned to the proximal, and a porcelain inlay was fitted in, giving full correction of the facial expression. In the discussion some thought an artificial crown preferable, but the living tooth had the most advocates. The inlay question was talked over earnestly and far more favorably than has been the case formerly, and it was quite agreed that skill controls success with either high or low fusing bodies. Dr. Head of Philadelphia spoke at length, for he had visited Dr. Jenkins of Dresden during the summer, and many were anxious to hear from him. Dr. Head also discussed the merits of gold and platinum matrices, and gave his preference decidedly for gold, claiming that it could be pushed to greater perfection of adaptation to the cavity. Considerable emphasis was put upon the simplicity of cavities.

Dr. S. G. Perry exhibited some choicely made and very thin rub-

ber disks, having carborundum incorporated in them, for making undercuts in the inlays.

Dr. Norman W. Kingsley appeared on the floor for the second time in some seven or eight years. His fiftieth anniversary banquet has fortunately turned him again to future public service. It is stated on good authority that he gave the name which the society bears.

One thing seems strange to us, that there was not a mention in either society of the Paris Congress. From all quarters we hear that while Paris did her best, both the congress and exposition were far behind those of Chicago in '93.

Dr. Jarvie introduced the idea, perhaps to arouse discussion, of having a woman go to houses, by recommendation, for the purpose of giving monthly cleaning of teeth. The plan was suggested to him by a lady patient, who thought it would be feasible, just as one has a manicure, etc. It was emphasized in his mind by having a woman dentist call who was quite discouraged at her failure to obtain a regular clientele. The idea was discussed without much favor or enthusiasm, but we believe considerable good might be accomplished by bringing the definite attention of the feminine portion of families to their teeth each month. If a few leading dentists would endorse the plan to patients in their locality it would probably become practicable.

It was amusing to hear some dentists say that harm could be done by too much cleaning of teeth. We have never seen any harm from it, and hardly think such a result is ever attained. Dr. D. D. Smith of Philadelphia has been introducing among his patients a practical plan for this monthly care of teeth by contract, and he almost guarantees an immunity from caries, emphasizing the matter to young patients at the start. He fully described the idea in the September DIGEST, page 643.

This preliminary practice on young children can not be too strongly emphasized. Dr. Smith's movement along this line has had a tendency to systematize the practice, and if carried out it will do much to bring about a more favorable "environment" around the mouth and teeth, and also do much to check what would in many cases be destructive under the influence of "predisposition." We learn that this matter will be especially discussed at the North-eastern Dental Association meeting this month. No man ever em-

phasized more the early cleansing and definite care of children's teeth than did the late Dr. Riggs. If dentists do not know the value of cleansing teeth, and the polish they are capable of taking, there is much to learn, for in that class of teeth which is predisposed to caries, polishing and frequent cleansing gives an almost absolute immunity to decay. Practice would be a revelation to anyone ignorant along this line. True prophylaxis can begin only here.

Cordially yours,

NEW YORK.

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CLOSURE OF A CLEFT PALATE BY LINGUAL IMPLANTATION.—In a case of cleft palate in which the Langenbeck as well as the Davies-Colley operation failed to cover the immense congenital defect, I recently implanted a portion of the tongue. The ease with which even extensive resection of the tongue is tolerated by carcinomatous patients induced me to form a lateral flap from the tongue, which, after being turned and reflected near the base, was united with the freshened edge of the cleft of the same side. The gaping wound margins of the side of the tongue were accurately united then and the floor of the mouth and the lingual angle packed with iodoform gauze. During the after-treatment a mild solution of boric acid was sprayed through the nostrils every fifteen minutes. Liquid diet was given exclusively. After nine days the basis of the flap was severed, and one week later the flap was united with the opposite margin of the cleft according to the usual uranoplastic procedures.—Dr. Carl Beck, in *N. Y. Med. Jour.*

BORAX AND FORMALDEHYD AS PRESERVATIVES OF FOOD. By Dr. W. D. Halliburton.—The writer urges that the use of foreign substances as preservatives of foodstuffs should be abandoned and replaced by a more wholesome use of the method of cold transport and cold storage. An antiseptic is inimical to the life of the organisms that cause putrefaction; it cannot therefore be harmless to the vital processes in the higher animals. Dyspeptic and other troubles follow the use of foods preserved with borax. Even if, as in the case of boric acid and borax, the poison is not cumulative, the continuous passage of foreign substances through the kidneys must be harmful to those organs. The writer has carried out experiments, the results of which go to show that borax and formaldehyd should not be used as food preservatives. Borax, while a very inefficient antiseptic, completely inhibits rennet activity when added to milk in the proportion of one part of borax to 1,000 parts of milk. Formaldehyd, while a powerful antiseptic, renders foodstuffs very indigestible. A percentage of 0.05 part of formaldehyd renders gastric digestion (i. e., with pepsin and hydrochloric acid) almost impossible. Pancreatic digestion is prevented by it even more readily. Pancreatic digestion of starch and rennet action on milk are both markedly delayed by the presence of formaldehyd. So that the injurious effect produced by these preservatives upon the enzymes of ordinary digestion furnishes a cogent reason why they should not be used in the preservation of food.—*British Med. Jour.*

# **The Dental Digest.**

**PUBLISHED THE TWENTY-EIGHTH DAY OF EVERY MONTH**

**At 2231 Prairie Avenue, Chicago,**

**Where All Communications Should be Addressed.**

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## **Editorial.**

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### **CERTIFICATES OF MEMBERSHIP IN PROTECTIVE ASSOCIATION READY FOR DISTRIBUTION.**

By the time this issue of the **DIGEST** is in the hands of our readers the long-expected certificates will be engraved and ready to mail. The work of affixing names to same and of addressing mailing envelopes cannot be undertaken until a few days later. If you have changed your address during the last few months, or if from some mistake in mail matter which you have received from this office you believe your name and address are not correctly entered upon the membership books of the Protective Association, we would urge that you notify the chairman of that organization immediately. Every member in good standing, that is, who has paid \$20 to cover the membership fee and assessment, may expect his certificate between now and the end of November. There is, however, a great deal of work incident upon making out, signing and addressing six thousand of them, so no one need be alarmed if the certificate does not arrive before the end of the month.

### **CROWN COMPANY'S LATEST MOVES.**

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In the case of the International Tooth Crown Co. vs. Dr. Joseph S. Vinson of Newark, N. J., an attempt was made Oct. 9 to secure a fine and commitment for contempt of court of Dr. Vinson for refusal to attend upon preliminary examination of himself as a witness under an order obtained by the Crown Co., but Federal Judge Kirkpatrick who heard the case took it under advisement. We confidently believe that the order will be denied.

On Oct. 12 the Crown Co. attempted to compel Dr. Colin S. Carter of New York City to file a bill of particulars in the litigation against himself, identifying certain facts as evidence which we proposed to rely on as defenses in the Carter case. Judge Lacombe

took this matter under advisement, but the Crown Co.'s attorney abandoned and withdrew his motion before a decision of court was handed down.

We have just learned that Judge Lacombe, upon our motion and petition, has directed Dr. L. T. Sheffield, president of the International Tooth Crown Co., and his brother-in-law, James Orr Kyle, the so-called defendant in the recent litigation of the Crown Co. against Kyle, when the Low patent was again sustained, to attend and submit to an examination before a Master in Chancery as to the allegation of the collusion and fraudulent character of that litigation.

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### IS THE DENTAL TRUST A BENEFIT TO THE PROFESSION, AND IF NOT, WHY IS IT ALLOWED TO EXIST?

In starting a discussion of this subject, we would first quote from the New York *Tribune* of recent date, which says—"The worst enemy of social order to-day is not the beery brawler, but the law-breaking and law-evading corporation in its insolence of wealth and influence. *Corporate anarchism, that is the name.*" These few lines certainly deserve careful consideration by thinking people. Few admit that trusts are a good thing, but while the great mass of the people wish to see them wiped out, and while the question is made an important issue in the present presidential campaign, no remedy by legislation has yet been discovered. It is not our intention, however, to go into the general question of trusts, but merely to show the profession how dangerous an organization the Dental Trust is, and also to point out the means of suppressing it.

The word trust, as it is generally applied to the modern consolidation of firms, is really a misnomer. Strictly defined, a trust is an illegal agreement between different firms or individuals to control prices and markets. The trust of to-day is really a big corporation that proceeds, under the protection of the law, to do the very things that the actual trust can not do without violating the law. The great industrial organizations of the present time are therefore trusts *de facto* if not *de jure*.

The opposition to trusts is usually either academic or partisan—the former abstruse and theoretical, the latter illogical and extreme. We do not intend to consider the question from the standpoint of either the stump-speaker or the political economist. Much of the

current discussion is wide of the mark, and we deplore the wholesale condemnation of corporations. Many of them are exemplary concerns, and much of the most important work of the world could hardly be accomplished without them. In so far as the modern corporation represents the successful application of the spirit of intelligent organization and cooperation, it is a good thing; but when it seeks to enable a few greedy and unscrupulous individuals to plunder an industry or a community, it becomes a menace to society and should be suppressed. Individuals have some inherent rights, but the corporation is wholly a creature of the law. What the law has made it should control. Law has been defined as a waiver of the individual right for the good of the whole number. It is therefore manifest that the law should create nothing subversive of the public good.

A striking illustration of the good and bad corporation can be found in our own profession. The Dental Protective Association is a corporation of an exemplary character, and the object of its organization is to accomplish the greatest good for the greatest number. In it is exemplified the principle of cooperation and mutuality. The humblest dentist by becoming a member benefits his fellows and is himself benefited. What would have been impossible for the individual has been brought to the greatest culmination of success by cooperation. Like insurance companies, it is an example of what may be called a beneficent corporation. On the other hand, the trust which seeks to control all our dental supplies is a pernicious corporation which extorts from the many to benefit the few.

The corporation laws of the several states have been warped from their original intent and made to encourage rapacity. It is generally admitted that the trust evil could be corrected by judicious legislation, and it is urged that progressive criminality calls for progressive prevention. The difficulty lies in the conflicting laws of the different states, and the inability of the national government to regulate corporations which operate under state charters. A healthy public sentiment is being rapidly engendered, however, which should ultimately crystallize into some restrictive measures.

Pending a legal settlement of the vexed question, there is a means of curtailing operations of the trusts, that if pursued continuously would drive many of these mammoth corporations into the hands of the sheriff. We allude to the purchasing power of the

individual. The great majority of the dental profession do not believe that the Dental "Combination" is a benefit, and they rail against this enormous and disgraceful trust which is robbing them. As yet, however, they do not seem to have realized how the evil may be suppressed, and how the power lies entirely in their own hands. If every dentist were to resolve that he would not buy any article made or controlled by the Trust that could be obtained elsewhere, the combination in dental supplies, formed to keep up prices and prevent competition, would soon be forced to separate into its component parts. At present the Dental Trust, which desires *commerce without competition*, is a despotism tempered only by the existence of a few firms outside the unlawful Combination. If the dentists were more keenly alive to the danger which confronts them, and more determined to use their purchasing power as a weapon, competition would be engendered and strengthened, and the trust evil would be minimized if not entirely eradicated from our profession without waiting for the slower legislative remedy that ultimately may or may not be enforced.

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## Notices.

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### OHIO STATE DENTAL SOCIETY.

The thirty-fifth annual meeting of this organization will be held at Columbus Dec. 4-6, 1900, at the Great Southern Hotel.

S. D. RUGGLES, Sec., Portsmouth.

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### ILLINOIS STATE BOARD OF DENTAL EXAMINERS.

At the recent annual meeting of this board the following officers were elected for the ensuing year: Pres., H. W. Pitner, Fairfield; Sec., J. G. Reid, 1006 Champlain Bldg., Chicago.

No licenses will be issued by the board between Dec. 1 and 15, inclusive.

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### LATEST DENTAL PATENTS.

- 659,196. Artificial tooth-crown and post, A. P. Johnson, Ada, Minn.
- 659,216. Dental chair, C. B. Dowling and W. D. Durham, Swanssea, S. C.
- 659,581. Dental articulator, G. R. Johnson, Hastings, Mich.
- 659,684. Rubber-dam holder, J. A. W. Lunborg, San Francisco.
- 659,747. Dental vulcanizer and celluloid press, H. Hartwig and A. W. Feltman, Chicago.
- 659,871. Dental articulator, T. G. Lewis, Buffalo, N. Y., assignor to Buffalo Dental Mfg. Co.
- 659,886. Dental cervical clamp, C. G. Capwell, Boston.

## INSTITUTE OF DENTAL PEDAGOGICS.

The seventh annual meeting of this organization will be held at the Maxwell House, Nashville, Tenn., beginning at ten o'clock Dec. 27, 1900, and continuing three days. The program will appear later in all the dental journals. Everyone interested in dental teaching should feel it his duty to attend, as it is his privilege to speak on any subject on the program. The interest of last year will be maintained, and the plan of developing thoroughly a few topics given a trial. A cordial invitation is extended to the profession, and especially to the teachers, to be present.

H. W. MORGAN, }  
D. M. CATTELL, } Ex. Com.  
W. E. WILLMOTT, }

## NORTHEASTERN DENTAL ASSOCIATION.

At the sixth annual meeting of this organization, held at Providence, R. I., Oct. 16-18, 1900, the following officers were elected for the ensuing year: Pres., A. J. Flanagan; First V. P., C. F. Bliven; Second V. P., A. W. Crosby; Sec., E. O. Kinsman; Assistant Sec., F. M. Wetherbee; Treas., J. T. Barker; Librarian, C. H. Riggs; Editor, F. T. Murlless, Jr.

During the session the Philadelphia Alumni Association of New England was formed with the following officers: Pres., Jas. McManus; Sec. & Treas., D. W. Johnston; Ex. Com., one member from each New England state. All graduates of the Philadelphia Dental College residing in New England are eligible to membership, and should send their names to Dr. D. W. Johnston, New Haven, Conn.

## NOTICE CONCERNING NEW COLLEGES.

*To Whom It May Interest:*—At the annual meeting of the National Association of Dental Faculties, held at Niagara Falls, 1899, the following action was taken: *Resolved*, "That a commission, consisting of three persons, be appointed, whose duty it shall be to take cognizance of, investigate and advise with any parties contemplating the establishment of a new college or the reorganization of an old one."

In the performance of the duties of this commission it shall be competent to take into consideration the following points: All the circumstances that attach to it; the motive that prompts such an organization; the need for it; the proposed locality; the character and ability of those who propose to conduct it; the resources that may be available for its establishment, and any other points that have a bearing for or against the starting of a proposed college. Full knowledge on these points would enable the commission to advise wisely.

Any person or persons having in contemplation the organization of a new dental college, or the reorganization of one already in existence, are requested to communicate with this commission for conference.

It shall be the duty of this commission to report to the parent body at each annual meeting, giving in detail such facts and conditions pertaining to the subject as the commission may find.

Commission: { J. TAFT, Chairman, Cincinnati.  
GEO. E. HUNT, Indianapolis.  
FRANK HOLLAND, Atlanta.



## News Summary.

THE TEETH of time must be those a dentist supplies on credit.

WILL A. BOYD, 30 years old, a dentist at Salt Lake City, died Sept. 10, 1900.

STUMP ORATOR.—"A dentist who talks about himself."—*Facts, Fads and Fancies*.

L. H. BARTHOLOMEW, 53 years old, a dentist at Terre Haute, Ind., died Oct 17, 1900.

E. F. WILSON, 81 years of age, a dentist at Montclair, N. J., died Sept. 17, 1900.

F. GODBOLT, 63 years of age, a dentist at Vicksburg, Tenn., died Oct 2, 1900, from cancer.

A. E. VERRINDER, 42 years old, a dentist at Santa Clara, Cal., formerly of San Francisco, died Oct. 14, 1900.

P. J. SHAW, a traveling dentist, was killed by a train on a railroad bridge near Johnstown, Pa., Sept. 27, 1900.

THOS. B. DELCHER, 25 years old, died Oct. 9, 1900, at Dade City, Fla. He had just graduated from the Baltimore Dental College.

ED HARRISON, a young dentist at Terre Haute, Ind., committed suicide Oct. 23, 1900, while despondent over lack of employment.

J. E. ELLSWORTH, a dentist at Aberdeen, S. D., was shot Sept. 23, 1900, by a man who claimed that Ellsworth had broken up his home.

ALCOHOL LAMP EXPLODES.—A dentist at Newark, Ohio, was badly burned Oct. 12, 1900, while filling an alcohol lamp, by the fluid igniting.

ENCOURAGING.—A Brooklyn dentist advertises, "A sure thing the first haul, or if not, the weather-strips are so arranged that no sound can escape."—*Argus*.

DEATH FROM CHLOROFORM.—A woman at Ovid, N. Y., died Oct. 8, while a tooth was being extracted. The dentist states that he administered less than an ounce of chloroform.

ABBOTT DENTAL CLUB was organized at Des Moines, Ia., Sept. 21, 1900, and the following officers elected: Pres., G. W. Miller; V. P., F. M. Hunt; Sec., F. W. Knott; Treas., H. Keeler.

SOUTHWESTERN IOWA DENTAL SOCIETY, at its meeting Oct. 16, 1900, elected the following officers: Pres., F. S. Schadel; V. P., F. M. Kelsay; Sec., F. P. Wells; Treas., G. E. King.

PENNSYLVANIA STATE EXAMINING BOARD.—Gov. Stone appointed on Sept. 18 H. B. Roberts of Philadelphia a member of the board, vice P. S. Moore. H. F. Dupuy of Pittsburg was reappointed.

WM. SCHELD, aged 58, a dentist at New Haven, Conn., died from apoplexy Oct. 1, 1900. He had extracted a tooth for a patient and became unconscious immediately after, dying in an hour.

**VULCANIZER EXPLODES.**—This time it is at Weedsport, N. Y., in the office of A. H. Sprague. The windows were broken and most of the smaller articles in the room destroyed, but no one was injured.

**BLOOD-POISONING CAUSES DEATH.**—A woman at Bellevue, Ohio, died Oct. 13 from blood-poisoning. Several weeks before all her teeth were extracted under gas, and blood-poisoning set in almost at once.

**ILLINOIS FIRST DISTRICT DENTAL SOCIETY**, at its eighteenth annual convention Sept. 25-26, 1900, elected the following officers: Pres., T. F. Henry; V. P., W. E. Mabey; Sec., J. F. Kyler; Treas., J. W. Marshall.

**CAN NOT PATENT THE TEETH.**—The patent office at Washington has refused to patent "Roosevelt's teeth," a puzzle somewhat resembling the "Pigs in Clover." The inventor utilized only the upper set of teeth as a model.

**DENTISTS FOR PHILADELPHIA HOSPITAL**—The Board of Charities has decided to appoint four dental students for service in this institution, and they will be chosen one each from the four leading dental colleges at Philadelphia.

**SOUTHERN CALIFORNIA DENTAL ASSOCIATION**, at its annual meeting Oct. 9-10, 1900, elected the following officers: Pres., A. H. Palmer; First V. P., H. W. Moore; Second V. P., R. F. Phillips; Sec., L. E. Ford; Treas., J. M. White.

**DENTAL SALESMAN ROBBED.**—A thief changed the claim checks on some baggage at the railway station in Joliet, and thus secured a valise containing several hundred dollars in gold, silver and checks which belonged to a dental salesman.

**HEALTHY TOWN.**—The water carts of a certain city are decorated with patent medicine advertisements. On seeing one of them a farmer remarked, "It is no wonder this town is so healthy if they sprinkle the streets with Blank's Sarsaparilla."

**NORTHERN IOWA DENTAL SOCIETY**, at its annual meeting Sept. 4-6, 1900, elected the following officers: Pres., W. R. Clack; V. P., J. A. Walter; Sec., Wm. Finn; Treas., H. W. Rizer. The next meeting will be held at Lake Okoboji Sept. 3-5, 1901.

**HARTFORD (CONN.) DENTAL SOCIETY** at its annual meeting Oct. 9, 1900, elected the following officers: Pres., N. J. Goodwin; Sec., Edward Eberle; Treas., E. R. Whitford; Librarian, G. O. McLean; Ex. Com., Henry McManus, C. H. Riggs, H. J. Pillion.

**WRONG TOOTH PULLED; DAMAGE SUIT.**—A fourteen-year-old boy at New York City, through his guardian, has sued a dental parlor for \$3,000 damages, because by mistake an operator in that establishment pulled a sound tooth instead of the one which was decayed.

**SAVING HER TEETH.**—"Why, Norah," said Mrs. K. to the new cook, "I thought you said you knew how to make a nut cake." "An phwat is thot if it isn't a nut cake, ma'am?" "But you've put the nuts in whole." "Begorry, an' I t'o't yeez was as able to crack 'em as I was. Yer teeth's as good as mine."—*Philadelphia Times*.

**LICENSE NECESSARY IN GRAND RAPIDS.**—The traveler for a dental supply house recently found out to his sorrow that he must have a thirty-day license, cost \$2, before he could sell goods in Grand Rapids, as under the terms of a new city ordinance salesmen are not allowed to sell their samples.

**PAINLESS EXTRACTION.**—First dentist: "The fact is, I've got gentleness down to such a fine point that my patients go to sleep while I'm pulling their teeth." Second dentist: "That's nothing! Mine are beginning to have their photostaken while I operate, because they always have such a pleasant expression on their faces."—*Puck*.

**STUDENT'S MEDICAL DICTIONARY.** By George M. Gould, M. D., A. M. This work, which has been enlarged and contains many illustrations, has reached its eleventh edition. It contains many useful tables and reliable information for the busy practitioner as well as the student. Philadelphia: P. Blakiston's Son & Co., 1900. Price, \$3.50.

**DANGERS OF FALSE TEETH.**—According to an English newspaper, a man was undressing on the seashore preparatory to bathing. There was a cold wind, and the bather while shivering with cold swallowed his false teeth, which choked him to death almost instantly.——An old woman swallowed an upper plate while eating, and death was caused by syncope.

**MEXICO NOT TO BE FOOLED.**—Although Mexico may be behind the times, her laws on patent medicines might well be universally adopted. It is reported that if in Mexico a bald-headed man buys a bottle of hair-oil, and it fails to accomplish everything set forth on the label as regards the restoration of hair, etc., he can have the seller arrested and put in jail.

**"ANESTHETICS, THEIR USES AND ADMINISTRATION."** By Dudley W. Buxton, M. D., B. S. This is the third edition of the work by this authority on anesthetics. It is brought well up to date and covers the field of anesthesia from a practical viewpoint. We commend the book to students and anesthetists generally. P. Blakiston's Son & Co., Philadelphia. Price, \$1.50 net.

**INDIANA STATE BOARD FOOLED.**—It is reported that a negro was practicing dentistry in Indianapolis without a license. He refused to take the examination, and the state board brought action against him. The case was continued several times and the defendant was meanwhile studying. When he finally had to take the examination he passed without difficulty and is now a regular practitioner.

**DENTISTS AS DETECTIVES.**—Dr. Hans Gross of Czernowitz, in the second volume of his book on Criminal Anthropology, shows in detail how dentists can be of great service in the identification and discovery of criminals. After the terrible fire at the Charity Bazaar in Paris in 1897 many of the victims were identified by their teeth. Dr. Gross also cites many cases where criminals have been apprehended in this way.

**"FACTS, FADS AND FANCIES ABOUT TEETH."** Compiled and edited by Henry L. Ambler, M. S., D. D. S., M. D. This is a volume of over three hundred pages, beautifully bound in cloth and finely printed on good paper. It is a

most unique, entertaining and useful little book, and is deserving of a place both in the dentist's library and on the waiting-room table. Published by the Helman Taylor Co., Cleveland, O. Price, \$2.

**QUEER LEGAL QUESTION.**—A dentist in Montreal, Canada, is threatened with arrest for receiving money under false pretences. The patient paid \$125 in advance for some work, which has not been done, and now has no gold either in his pocket or in his teeth. It may be decided that the dentist is liable only to action in the civil courts for having broken his contract. This is the first case of the kind, and will probably establish a precedent.

**THIRD SET OF TEETH.**—A versatile newspaper correspondent of the *Indianapolis News* reports that a woman in the state, 72 years old, is cutting her third set of teeth, and that three above and two below have already appeared. Furthermore, her hair, which has been snow white for fifteen years, is turning black and glossy. The correspondent does not state that she has taken to rolling a hoop or playing with dolls, but we presume that will be next in order.

**MICHIGAN STATE BOARD AROUSED.**—It is stated that the prosecuting attorney of Oakland county has refused to bring to trial several unlicensed dentists within his jurisdiction. In case he continues to neglect his duty charges will be filed with Gov. Pingree. Of the twenty-one candidates for license only eleven were successful at the last examination, most of the failures being due to lack of mechanical efficiency rather than to want of technical knowledge.

**COMMON VS. HIGH SCHOOL EDUCATION.**—Gov. Voorhees of New Jersey has decided that the meaning of a "common school" education can not include that received in a high school, for the latter is the exceptional school. The question was brought up by the New Jersey State Board of Dental Examiners, which had refused applicants because they did not have a high school education. The Governor's opinion has been sustained by the state superintendent of schools.

**WISCONSIN LITIGATION MOVES ON.**—It will be remembered that the Wisconsin State Board of Dental Examiners some time ago refused to grant a license to M. J. Rice of Sparta, because they did not think the college from which he had been graduated lived up to the necessary requirements. The matter has dragged along through the courts, and now the supreme court has settled a technicality, instead of deciding the main issue, so that the matter may not come up again until next spring.

**SALOON OBJECTIONABLE TO COLLEGE.**—A dental college at Des Moines, Iowa, has petitioned the city council not to grant a license for the establishment of a saloon on the first floor of the college building. The objection is based on that section of the code which provides that no saloon may exist within three hundred feet of a schoolhouse. The question is raised whether the dental college is a schoolhouse under the circumstances. If so, three saloons already operating within three hundred feet of the college may be closed.

**ESOPHAGOTOMY MAY SAVE LIFE.**—A woman in Williamsburg, Pa., swallowed her set of false teeth and it lodged in the esophagus, slowly choking her to death. Great care was necessary during operation, and afterward, owing to the danger from the slightest movement of the muscles of the throat and head while wound was healing, so the patient's head, arms and trunk were incased in a plaster cast. Her lips are moistened with water every few moments, but artificial feeding is employed. The surgeon in charge believes patient will recover.

**FRATERNITY BANQUET DISASTROUS.**—The Delta Sigma Delta Fraternity gave a banquet Sept. 24, at the Chicago Athletic Association Club House. No wine was served, but twelve of the twenty-four dentists present were taken very sick soon after, and ptomain poisoning is suspected. The dentists who suffered most severely are J. W. Slonaker, G. N. West, G. W. Haskins, F. H. Zinn, L. O. Green, L. S. Tenney, R. Beck, A. G. Johnson, J. E. Nyman, A. B. Allen, P. J. Kester and D. C. Bacon. There are several teetotalers in this list, so we incline to the ptomain-poisoning theory.

**MOUTH WASH** and gargle for sweetening the breath:

R	Acid salicylici,	
	Sodii bicarb,	
	Sacchari.....	aa gr. xv.
	Spt. vini rect.....	3 i.
	Spt. menth. pip.....	gtt. x.

M. S. Teaspoonful in a small cupful of hot water.

—Palmer, *Med. Rec.*

**MEDICINE AS A BUSINESS PROPOSITION.**—By Dr. G. F. Lydston. This article, which is amusing and instructive, may be summed up in the opening words: So live that when thy summons comes to join the innumerable caravan which moves to that mysterious bourne peopled by doctors who have died of innutrition, thou go not like the general practitioner called at night, scourged from his office, but, sustained and soothed by the motto, "Never trust," approach the grave like one who wraps his stooks and bonds about him and lies down to pleasant dreams.—*N. Y. Med. Jour.*

**ABSENT TREATMENT.**—A young woman of Troy tells a good story at the expense of her aunt, who is a Christian Scientist. The latter had observed with a growing pity a cripple who passed her house daily. His efforts to walk were so tiresome that she determined to try the "absent treatment" on him. After the first few days of her self-imposed task she thought she noticed signs of improvement, and one day he appeared without his crutch and walked with hardly a limp. She was so overjoyed that she rushed to the street, seized the man's hand and said: "My dear friend, you must excuse me, but I cannot refrain from rejoicing with you over your cure. I have used faithfully the 'absent treatment' for your infirmity, and I cannot tell you how happy I am to see by your walk you have recovered." When the man rallied from the bewildering effect of this sudden outburst of "present treatment" he replied: "Thank ye kindly, ma'am, for your interest in me. I don't suppose it has hurt me any. But, to tell the truth, I have just got a new wooden leg, and it works splendid, ma'am."—*N. Y. Tribune.*

**HEALTH COMMANDMENTS.**—1. Thou shalt have no other food than at meal-time. 2. Thou shalt not make unto thee any pies, for the dyspepsia will be visited upon the children to the third and fourth generations of them that eat pie, and long life and vigor upon those that live prudently and keep the laws of health. 3. Remember thy bread to bake it well; for he will not be kept sound who eateth his bread as dough. 4. Thou shalt not indulge sorrow nor borrow anxiety in vain. 5. Six days shalt thou wash and keep thyself clean, and the seventh take a great bath, for in six days man sweats and gathers filth and bacteria enough for disease; whereupon the Lord has blessed the bathtub and hallowed it. 6. Remember thy sitting-room and bed-chamber and keep them ventilated. 7. Thou shalt not eat hot biscuit. 8. Thou shalt not eat thy meat fried. 9. Thou shalt not swallow thy food unchewed, or highly spiced, or just before hard work, or just after it. 10. Thou shalt not keep late hours in thy neighbor's house, nor with his cards, nor his glass, nor with anything that is thy neighbor's.—*Ex.*

**HOW FROZEN MEAT DETERIORATES.**—Meats frozen in cold storage for long periods do not undergo organic changes in the ordinary sense—that is, they do not putrefy, soften or smell bad, but they certainly do deteriorate in some intangible way. After a certain time frozen meat loses some life principle essential to its nourishing quality. Such meat lacks flavor; it is not well digested or assimilated. Its savorless condition cannot be remedied or successfully disguised by the use of sauces and condiments. Those who eat cold storage meat for any length of time develop diarrheal disorders, lose in weight, and would eventually starve to death unless a change of diet were made. The same reasoning applies to tinned fruits and vegetables. They should not be used after a certain period has elapsed. Especially should people be warned against using stale eggs and old milk and cream. Milk and cream are kept for days, rancid butter is washed and treated chemically, but all food, and especially cold storage food, is damaged by long keeping, and will not nourish the body properly. There is the greatest abundance of food, but it does not satisfy.—*Sanitary Record.*

**FATAL MALIGNANT ENDOCARDITIS DUE TO DENTAL CARIES.**—Dr. W. Ewart described a case of fatal malignant endocarditis and right embolic hemiplegia apparently due to dental caries and stomatitis, treated by antistreptococcic serum and by salin infusions. The case was of the usual type. Hemiplegia was present on admission, and a rough murmur, increasing in intensity from day to day, was heard over the aortic area. The mouth was foul, with many decayed stumps and a fetor like that of dead bone. No other departures from health and no history of any wound were discoverable. Injections of antistreptococcic serum and larger ones of salin solution were employed. The latter in one or two cases had the addition of three-quarters of a grain of cacodylate of sodium to the pint. The patient died and no other source of infection except the mouth could be discovered. Dental hemorrhage had been noted by several writers on this disease, and Dreschfeld had quoted cases where stomatitis was present. This case must either be termed idiopathic or the mouth must be considered the point of entrance for the mi-

crobes. He preferred the latter view, and urged that such an easily examined cavity as the mouth should not escape examination in future cases.—*Brit. J. D. S.*

**SURGICAL TREATMENT OF TRIGEMINAL NEURALGIA.**—Victor Horsley has in twenty-one cases removed the Gasserian ganglion for the cure of trigeminal neuralgia, limiting this term strictly to what was originally called *tic douloureux*. In the early stages the disease can be treated by drugs, but neither drugs nor electricity bring about a cure. All clinical evidence seems to point to the fact that it begins in the peripheral branches of the fifth nerve, and creeps as an inflammatory process up the peripheral branches of the nerve until it reaches the Gasserian ganglion. The writer says that out of the twenty-one cases operated on there were only two deaths. He has operated on four patients over eighty years of age, so that age itself is not necessarily a bar to the operation. In no one of his cases has he seen a recurrence, and his experience extends over five years.—*Med. Rec.*

**BACILLUS AGNOSTIC.**—(After Longfellow—about nineteen years):

In from his rural dominion,  
Fresh from his rustic location,  
Came the bacillus agnostic,  
Rank disbeliever in microbes.  
Talked he right bold to the doctors—  
Those who believe in the ptomaines—  
Thus spake Reub, sore on such folly:  
“Long years ago in the country  
Had we a place called a schoolhouse;  
Always without ventilation,  
Ever without any safeguard  
’Gainst the onslaught of disease.  
Never an oven for pencils,  
Never a book fumigator,  
Never a bit of precaution  
Other than such as the beasts have.  
(Some asafetida, surely,  
Eke, some small baglets of sulphur.)  
Drank all we brats from one tincup,  
Aye, from one bucket we guzzled;  
Some even poured back their leavings!  
Sometimes a slate that was borrowed,  
Bearing nine kinds of dried moisture,  
Had to be cleansed before using—  
Used we our tongues for the cleansing.  
Yet was there none of us ailing;  
Ne’er had we heard of the microbe.”  
Thus the bacillus agnostic,  
Rank disbeliever in ptomaines.  
Silence from all of the doctors.

—*Indianapolis Journal.*

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## Original Contributions.

### AUTOINTOXICATION AND MERCURIAL RETENTION.

BY E. L. CLIFFORD, D.D.S., CHICAGO.

A recent case in practice has proved interesting and recalls two other cases, the only ones of a similar nature occurring in an experience of twenty-five years. Mr. S. was referred to me on account of extreme discomfort of the mouth and teeth, being entirely unable to enjoy that most pleasant function of mastication and to attend to his dental toilet. Patient about 52 years of age, very nervous temperament, a slave to his business, which is mental, and its demands upon his vitality; an American, man of family, good moral habits, family history negative; no hereditary tendencies, general or local, could be elicited save those of rheumatism. Digestion unsatisfactory, a victim of chronic constipation for years. No particular catarrhal manifestations, but some effects of medicines suspected.

His business called him periodically to various towns and cities, and he was forced to consult different physicians almost constantly. Sometimes he would simply call upon the druggist wherever he happened to be, asking for something to move the bowels, and taking whatever was dispensed without knowing its nature. The kidneys were not active, and while there was no blood or skin disease in the general acceptance of that term, he complained of a cold and clammy sensation almost constantly. To drinking water he seemed to have a peculiar aversion, but what he used when at home he tried to have of the purest, keeping constantly in the house demijohns filled from some of the many springs, concerning which our mails are full of advertisements. His habits could hardly be classed as either active or sedentary, but seemed to occupy a middle ground between the two.

As to local pathology, his teeth gave evidence of about *ordinary* care, such as we constantly see in business men of that age and activity. Five teeth had been lost from early decay; no mechanical

abrasion, the morsal surfaces of all the teeth being almost as perfect as we should expect at 25 years of age. Exquisite sensitiveness, however, pervaded the entire dental apparatus, especially the labial surfaces and gingival margins of the incisors and bicuspid. The inferior bicuspids were badly notched, with typical erosion, and the labial surfaces of the superior incisors were almost denuded of enamel from the same disease. No cavities of decay; peridental membrane greatly inflamed and congested in several teeth, one of which, the left inferior second bicuspid, the inferior molars on that side missing, was in a more advanced stage of pyorrhea. The upper molars of the left side, having lost their antagonists, were elongated and somewhat loose. The two inferior central incisors showed the most loss of process and gum tissue. No deposits upon the teeth, either salivary or serumal, but considerable mucus, for which he apologized, laying same to his inability to use even the softest brush and tepid water. No malarticulation nor malocclusion. Oral secretions showed acid reaction.

Diagnosis—Autointoxication from intestinal tract, all emunctories clogged, all secretions chemically changed and nutrition perverted. Treatment—Locally, alkaline antiseptic and astringent mouth-wash several times during the day, followed by Phillips' Milk of Magnesia the last thing at night. Constitutionally, advised more open air, more physical exercise, more drinking-water, bath and massage with good friction on the skin, opened the bowels and kept them open until a large number of scybala were obtained, and stimulated the kidneys to full limit of comfort.

Now to the peculiar development in the case. After about four days of purging, with only watery evacuations, the symptoms of mercurial poisoning and autoinfection became very prominent. I had used no mercury, but the patient stated that formerly he used a great deal of blue mass, and that when away from home he did not know what the druggists or physicians gave him. The pills he received at their hands may or may not have contained mercury. At any rate, the condition became alarming to the patient and his family. Laxation, however, was continued, elimination forced as rapidly as possible, until when the scybala were obtained liquefaction of same had greatly progressed. Particular inquiry had been made to keep me posted as to the odor from the stools, intestinal antiseptics being in constant use.

After four or five days of purgatives and severe weakness therefrom, nature was given a chance. Rest and recuperation followed, and with a return of general function the local oral symptoms all subsided. The patient is now enjoying the greatest comfort with his mouth and teeth; life, he says, has reopened to him, and he promises to follow strictly the instructions of the future. Prior to this treatment the eroded facets on the bicuspid and incisors absolutely could not be touched—now he can comfortably take the proper care of them. There is no sign of pyorrhea remaining. As a precaution I have ordered the magnesia continued indefinitely. For the pleasant, speedy and safe results in this case, with a minimum amount of medicine given, I feel indebted to alkalometry.

The two other instances referred to in the beginning of this paper were two cases of extreme susceptibility and severe mercurial poisoning, resulting from wearing red rubber plates. One case was met with about fifteen years ago, the other two years since. In both patients, protracted treatments by their respective physicians gave no relief, but the changing of the dentures resulted in a quick and permanent cure.

Now a word as to mineral poisons. The pathologists tell us their effects are certainly cumulative; mercury especially may be stored up in the bones, laid by as it were for a rainy day, and when that day arrives, bringing with it the proper elements, chemistry produces a change, absorption follows, and that too of an indefinite amount, with its sequelae of danger and disaster. In this first case I believe a certain portion of blue mass or other mercurial had been engaged in the scybala and had remained therein protected probably for years. The scybala in their solid state would not permit absorption. In the *single* purgations with which the patient had been satisfied in the past they had not been dissolved nor removed, but remained a constant source of irritation and of danger; but in the *continued* purgation the scybala were partially dissolved and liquified and absorption was the result.

### CELLULOID TABLE COVER.

BY GRAFTON MUNROE, D.D.S., SPRINGFIELD, ILL.

I wish to present to the readers of the *DIGEST* a little wrinkle that may be of interest to many operators who like neat things and a neat appearance about the chair. The idea is a table-top which can be

applied to any swinging table. Secure the correct dimensions, inside measurement, of the top of your table, then obtain from some artists' supply store a piece of sheet celluloid, such as is used for art work, preferably white, and of sufficient thickness to lie flat when put down. It should be fastened in place with thumb tacks. It is easily kept clean with a dampened cloth, and is noiseless as compared with glass tops, as well as less expensive, yet it has the same advantage that glass has over cloth for this purpose. I have been using a celluloid cover for nearly a year, and can heartily recommend it to my confreres.

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### GOLD AS A FILLING MATERIAL.

BY N. S. HOFF, D.D.S., ANN ARBOR, MICH. READ BEFORE THE MICHIGAN STATE DENTAL ASSOCIATION, AT KALAMAZOO, JUNE 11-18, 1900.

We may properly give gold first place for esthetic reasons. The color is such as will harmonize with all complexions and most shades of teeth; is durable, and any tarnishing is superficial, so it can be readily renewed. It is capable of being made very smooth, so may be kept from the contaminating influences of the mouth. It does not change form under strain of mastication, nor dissolve in the oral fluids. Because of its beauty and indestructibility it is not without a wholesome effect on the mental and moral nature of the patient who wears it in his teeth; at least he keeps his mouth clean.

Each of us has undergone a long and patient course of training to reach even a moderate degree of skill in filling teeth with gold. Can we appreciate as we should the mental and moral value of this self-denial? So far as we do, I am sure there is no subject nor substance associated with our training that has had more to do with the cultivation of a high standard of morals and technical attainments than has come as the direct result of our effort to utilize this material.

As evidence of its reputation, I call your attention to extracts from well-known text-books as to its use in only one department of our profession. In regard to its use as a material for filling teeth, Dr. Taft says: "Of all metals used for filling teeth, gold possesses more requisites than any other." Dr. Louis Jack says: "Gold possesses the highest preservative qualities, and promises greater durability and more satisfactory results than any other material." Dr. Gorgas says: "To the use of gold, when properly prepared, there is the least possible objection; a tooth may be so filled with it as to

secure in almost every case its permanent preservation." Dr. Fillebrown says: "Gold is the most elegant material for filling teeth that we possess, and for most cases it is the best." Dr. Ottolengui says: "Gold is preeminently the best material with which to fill teeth, and our main reliance for the salvation of teeth which have decayed must be upon gold." On the contrary, we do not perhaps discredit the above statements, in quoting the only strong contradictory one—that familiar quotation from Prof. H. S. Chase: "In proportion as teeth need saving, gold is the worse material to use."

Will gold stand the strain of mastication? Undoubtedly no material that we now use can approach it in this respect. It is perhaps not so hard as amalgam, its nearest competitor, still it is tougher and more resistant, especially in those cases where the edges are thin or where small bands connect larger masses of filling material. Amalgam being hard and brittle is liable to break, while gold, even in small quantities, will withstand great stress without giving away, demonstrating its superiority in this particular at least.

Does it, when carefully and properly applied, thoroughly seal the cavity and protect the denuded dentin from recurring decay? This involves the question of adaptability, and probably in this respect gold is surpassed by almost all other materials used for filling teeth. Amalgam, gutta-percha, cement, and possibly tin-foil, are all more easily applied or adapted to the tooth cavity; and yet these materials suffer in another essential particular. They have not the same endurance, and therefore do not provide permanent adaptation and protection. Because of molecular dissolution, either from physical or chemical reactions, which are continually taking place in the mouth, the substances mentioned fail to protect the cavity from the reappearance of decay; and gold, although more difficult of adaptation, by providing a more permanent sealing of the cavity than any other material, more fully conforms to even this standard. Gold certainly withstands much better the onslaughts of acids which destroy the baser metals and alkalies which disintegrate the acid cements.

Is it compatible with sensitive tooth structure? In one respect gold suffers badly at this test. It responds readily to thermal changes, having a higher potential in this respect than any other filling material. As conductors of heat we may grade them in the following order: Gold, amalgam, tin, cement, gutta-percha. Be-

cause of this undesirable quality, gold sometimes is a very troublesome irritant. Gold itself, however, is kindly tolerated by sensitive dentin because it is not readily soluble nor oxidizable. As an insoluble substance it is practically inert, and of itself the least irritating material which can be placed upon sensitive dentin. It sometimes happens that by approximate contact with filling materials of amalgam or tin it induces electrical disturbances which may result in irritating magnetic currents in the region of the fillings, resulting possibly in the disintegration of the tooth itself. This is, however, an incidental phenomenon rather than an accompaniment of gold fillings. Most other materials, especially the cements and amalgams, because of their greater solubilities, are more likely to prove incidentally incompatible with dentin.

There are two kinds of gold used in filling teeth, cohesive and noncohesive. I sent recently to four of the largest manufacturers of gold foil in this country for an estimate of the relative amount of each kind of gold they sell. Some manufacturers make gold preparations which may be used when annealed as cohesive and when unannealed as noncohesive, so I made my classification under three heads, and below tabulate the replies received:

MANUFACTURER.	NONCOHESIVE.	COHESIVE.	EITHER.
A.	5 per cent.	65 per cent.	30 per cent.
B.	5 "	70 "	25 "
C.	10 "	80 "	10 "
D.	$\frac{1}{3}$ "	$99\frac{2}{3}$ "	0 "
Total averages	$5\frac{1}{4}$ "	$78\frac{1}{2}$ "	$16\frac{1}{4}$ "

From this table it will be seen that a very large per cent ( $78\frac{1}{2}$ ) of the gold used in filling teeth is cohesive and a very small per cent ( $5\frac{1}{4}$ ) is noncohesive. The probabilities are that the percentage of cohesive gold is much increased because of the use of the "either per cent" ( $16\frac{1}{4}$ ), very much of which is doubtless used as cohesive foil.

This demonstration would seem to indicate that efforts to render gold more pliable and more easily manipulated are not being sought in the direction of noncohesive foil, as we would be inclined to infer from the fact that it has always been the claim for noncohesive foil that because of lack of cohesion it could be more easily and thoroughly packed into the angles and undercuts of comparatively inaccessible cavities. On the contrary, it would seem to suggest

either a renewed interest in endeavors to restore contours or a more general practice of this method of filling than is generally credited. We may not be justified in drawing these conclusions from this data because of its incompleteness, and also because of the fact that non-cohesive foil filling is scarcely taught at all in the dental schools, so the new men in the profession are prejudiced in favor of cohesive foil.

There are in use to-day three forms of the two kinds of gold, most of which are intended to be used cohesively, but some of them can not be used cohesively by any treatment. The first would include foils of every kind which come to the dentist in sheets of varying thickness but uniform in size, containing varying amounts of gold, indicated by a number. No. 2 foil, for instance, is a sheet about four inches square containing two grains of gold, while No. 60 is a sheet of the same size containing sixty grains of gold. The thinner foils, Nos. 2 and 6, are generally used by rolling them into ropes and cutting these ropes to varying lengths, from one to two inches, making pellets or rolls. The heavy foils are cut into narrow strips or ribbons. The thinner foils may be used on the cohesive principle by annealing, and when not annealed may be worked as non-cohesive foil. The thicker foils are always annealed at the time of their introduction into cavity.

There are objections to manipulation of the thinner foil by an operator who rolls it into ropes with a napkin or a piece of spunk. Unless done with great care the foil is not in the best form to produce a solid filling, for by careless manipulation it is crumpled so much as to produce great inequality in the amount of gold in each pellet or rope, so that in annealing and packing there is a lack of uniformity in the density of filling. If this manipulation has been done slovenly there is likely to be incorporated sufficient extraneous matter to interfere with the union of the several layers of foils, and the filling in time will tarnish and disintegrate because of imperfect welding. The preparation of foil into pads, which are then cut into strips or pellets, is cleaner and more preferable, as it places the sheets in smooth and regular form and impurities are less likely to be incorporated. This also facilitates packing and produces a more solid filling.

In consolidating pellets cut from a rolled rope, because of the irregularity of their structure it is difficult to drive out the enclosed air, which prevents complete consolidation, and also prevents that

close adaptation to the tooth walls which is essential to a good filling. The heavier foils are ideal in this respect, as their preparation is very simple. The foil is cut into ribbons of varying size, which are easily and perfectly annealed with little danger to the foil's integrity. This is so cohesive that its adaptation requires care only to place it with the plugger where wanted. It has the advantage of having only two surfaces to weld, where the same amount of gold in thinner foil or pellets would have from ten to twenty. It can be manipulated with smaller instruments and less force in malleting to secure the same and even closer union.

This form of gold not only produces a substantial filling throughout, but provides a surface which will take a high finish and remain so under the most severe use to which it may be subjected, showing little or no appreciable change in its form or surface. It will also retain its position with more shallow anchorages. In locations where necessary to carry it over exposed borders or through narrow fissures it is invaluable, because the full tensile strength of wrought gold in its strongest form is secured. Repairs to fillings with this form of foil can be securely made, because there is less liability to dislodge the original filling and secure anchorages may be put in its substance. In some respects a high order of skill is required for its manipulation, but reasonable care should be exercised to avoid the tendency to stuff the cavity rather than to fill it.

Cylinders are admirably adapted to filling proximal cavities in molars and bicuspid, also some classes of crown cavities; especially useful with the so-called "hand-pressure" method. But their greatest value is to be found in the combined hand-pressure and mallet. The use of cylinders by these methods will result in good fillings easily and quickly made. The chief fault lies in the failure to properly place and condense each cylinder. They may be used without annealing, and when so employed can be wedged latterly against the walls of the cavity or into angles and undercuts to some extent. But when annealed they should be condensed by direct pressure where placed, and should not be expected to change position to any considerable extent. Failure to recognize this distinction will result not only in imperfect condensation but lack of cohesion, and possibly of imperfections in adaptation. Cylinders should be annealed with great care, as there is a probability that by direct exposure to flame the pliable nature of the gold may be destroyed. They should



be kept from exposure to the air and carefully handled so as not to change their mechanical structure.

The third form of gold preparations for filling teeth includes the precipitated, or crystal, or "mat" golds. In 1853 Dr. A. J. Watts of Utica, N. Y., took out a patent for making the first crystal gold—it was, however, discovered and first made by Dr. H. R. White of Utica in 1851. It was then called sponge gold, and was made by dissolving pure gold in nitro-muriatic acid and precipitating it with oxalic acid in such a way as to induce the precipitate in the form of long crystals or fibres. The addition of mercury and heat was used to control the precipitation and determine its character.

The earlier preparations of crystal gold, although crude, met with much favor, but were partially abandoned when cohesive foil was introduced. We have at the present time several excellent preparations of crystal gold, all of which may be classified as cohesive, although without being annealed they are sufficiently noncohesive to be worked on that principle. They are, when properly annealed, capable of condensation into a solid mass, which may be rolled into plate. Contour fillings capable of taking and retaining a high polish are also made, and crown cavities which receive hard wear show little or no sign of destruction after long use. I have, however, noticed that thin edges where much exposed have a tendency to break out, indicating either brittleness or lack of complete welding.

I have made considerable use of this form of gold during the last three years with satisfactory results. For very small proximal fillings in the incisors, and also in other teeth the cavities of which may be in somewhat inaccessible positions, or such as would require extensive loss of tooth structure to prepare the tooth for ordinary filling material, it is almost invaluable. Instead of cutting these cavities through to the occlusal or labial surfaces, they may be opened labially or lingually and made sufficiently retentive in form to receive a considerable piece of the mat gold, which can then be consolidated with hand-pluggers of suitable angles to reach the grooves. The entire cavity is sometimes best filled with this gold, yet I find it often expedient to finish the filling with some other preparation of foil.

The greatest satisfaction came from using it to start fillings. Very little retaining shape is needed in many cases, as this gold seems to adhere to the tooth substance, and particularly if a sharp

corner or angle be made into which the first piece may be driven. It will settle itself with slight manipulation definitely and securely, so that subsequent additions of the same or other forms of gold may be successfully added without displacing it. By the use of this form of gold for such purposes deep undercuts and retaining points are avoided, and in many cases of frail or sensitive teeth this is quite desirable.

I find it of great service in starting fillings in the proximal surfaces of bicusps and molars which involve the entire surface and extend beneath the gum margin, necessitating the use of matrix. It is almost always difficult to make a suitable seat for fillings in such cases; but with a suitably adjusted matrix and a slight undercut on the lateral walls it is easy to start such fillings and make a secure joint at the cervical margin; and because of the ready adaptation of the gold good lateral joints are also possible. My practice is to carry such filling up into the cavity so far as may be necessary with alternate layers of mat gold and No. 60 foil until I can obtain direct access and a clear view for manipulation of the heavy foil, completing the filling with No. 60. In these cases I secure a strong anchorage for my filling on the occlusal surface of tooth, and by building a considerable part, say one-third, with No. 60 foil I feel confident that no amount of strain from mastication, which the tooth itself can stand, will disturb the filling.

Discussion. *Dr. J. A. Walling*: Despite the statistics furnished, I believe noncohesive gold has considerable value as a filling material. The first piece of gold put into a cavity I never anneal, so it is practically noncohesive, but I anneal each succeeding piece, and the amount of heat depends on the gold. If it tends to break in working I anneal it more and more as the filling progresses. The old operators ignored the cohesiveness of gold, yet made excellent fillings, simply on the principle of corking up the cavity. It would be difficult to cork a beer bottle with a piece of hard wood and keep the gas from escaping; so with fillings the softer the material used the better it will adapt itself to the walls of the cavity.

It requires more care to make good fillings with sponge gold than with any other, as in it there are millions of infinitesimal particles to be welded together, while the foils are already welded and do not require so careful and slow manipulation. Although the center of a sponge gold filling may be hard there is apt to be no con-

solidation against the walls of the cavity. Mat gold probably needs less retaining form than foil, as it does not slip around in a cavity so much as the latter.

*Dr. J. N. Crouse:* All absolutely pure gold is cohesive, and gold to be noncohesive must be either coated with something or else be impure. Noncohesive foil can be made cohesive by subjecting it to red heat, and vice versa, by putting it into a jar with a little ammonia on cotton at the bottom of same.

The advantage of non-cohesive gold is, that you can condense it more readily and in larger masses without its choking up. I generally start a filling with one sheet of No. 3 gold made into a cylinder, but the same quantity of cohesive gold would choke the cavity and not fit into it. In case non-cohesive gold does not go to the right place at first it can be taken out and unrolled, as it does not weld in the cylinder. I use a great many of the home-made non-cohesive cylinders, and can generally complete the filling in one-fourth less time than with cohesive foil. I do not think, all things considered, so good a filling can be made with mat gold in the same time as with foil. The matrix is all right for amalgam but not for gold, as in making fillings of the latter you must employ considerable lateral pressure, and you can not get it if a matrix is in place.

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## GAINING ENTRANCE TO PULP-CHAMBERS AND ROOT-CANALS.

BY L. P. HALL, D.D.S., ANN ARBOR, MICH. READ BEFORE THE MICHIGAN  
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We will suppose that the teeth are already devitalized, and that the rubber-dam has been placed where possible. If the tooth is very sore we may not need it the first time, as all we can probably do will be to give relief, and perhaps syringe tooth out. But when treatment is begun the dam is certainly needed. There are cases where it can not be used, for instance, those in which it is almost impossible to keep the saliva out, because the decay reaches so far beyond the cervical margin. In these it is possible to fill that portion at once with a temporary stopping of cement, amalgam, or gutta-percha, and make a new opening through the crown for treatment. In that way only one tooth need be covered.

As frequent reference will be made to the Gates-Glidden drills, it

may not be amiss to discuss the proper way to use them. We will all agree that they are not to be used except with care, never forced, and frequently withdrawn and cleaned; the pulp-canal, as well, must be cleaned, so that no debris is forced through the apex. Whether used in the straight handpiece or right angle, there should be a large, a medium, and a small drill. Which shall we use first? The advertisements usually say the smallest, following with the next in size, until you have made the canal large enough. With the reverse you will break fewer drills and use them to better advantage. Why? Because the canal or root as it leaves the pulp-chamber is largest just there and will stand more reaming. There is nothing to bind the largest drill at this point; then, after the first cut, there is a sufficiency of room in which to work the next size without binding. Do not think it necessary always to drill out a canal to the apex; sometimes to merely countersink or funnel out the mouth of canal is all that is required. If the canal needs much reaming out, find direction and length by using a very fine plain broach or explorer. The size of the crown may indicate the size and length of root, but the fallacy of this is seen frequently.

When a broach is passed through the apex of a root the sensation experienced is like a pin-prick, while if it touches a portion of pulp in the canal it will be more acute. Sometimes a broach so fills the canal that it acts like a piston, and air and debris are forced through. This causes pain. A more slender broach will pass much further with no pain.

To begin with the simplest and most easily entered teeth, we will first consider the superior incisors. Usually there is a filling or cavity on either the mesial or distal side, rarely one of sufficient depth on the labial. If a good filling be present, leave it intact and open on the lingual surface in the fossa. If a cavity presents, and of such shape and size as will with slight enlargement permit the passage of broaches and other instruments directly into the canal, its orifice will be sufficient.

Place the rubber-dam on three or four teeth in such manner that the cavity will be about the middle of the teeth covered; then cut away all thin walls and excavate from cavity all debris. Next, with either bur or drill ream out, if necessary, that portion of dentin between canal and cervical border of cavity sufficiently to allow free access to probe or broach. Now cleanse the canal of all debris of

whatever character, being careful not to force either instruments or debris through apex of root. If canal is of usual type, no further reaming will be necessary; if much reduced in diameter, either a broach or a Gates-Glidden drill may be used. Seldom is it well to force a drill to the extreme apex. Rather cut only enough to permit the free passage of broaches or probe with cotton for carrying medicinal agents or for drying purposes.

If, however, the operator expects to make use eventually of the canal for the post of a crown, it is advisable to so ream out canal that it will admit a fair-sized platinum pin before filling, as it is more readily done while you have in mind the general shape and direction of canals than to trust to memory and follow only a slender point of gutta-percha or whatever may have been used.

A tooth is occasionally presented in which there are either no cavities or the fillings are well made. In these cases it is of course best to open from the lingual side and in direct line with the long axis of the tooth. In case the tooth is very sore to touch, only the smallest and sharpest drill should be used; when it is once started, an even, steady pressure should be maintained. Once through to the pulp-chamber, or as soon as this venting will permit, the opening should be enlarged so that not only will free access be obtained to the canal, but also to the fan-shaped pulp-chamber, that all debris may be removed from the crown portion of the tooth.

Superior cuspids may be entered in much the same manner. Usually they are entered from distal cavities, and if so the cavity should be extended well to the median line on the lingual side to avoid bending or binding of instruments. It must be remembered that these teeth have much longer roots, and though usually straight, they may have much curve, even a right angle curve, near the apex. As they have large, strong roots, they will stand much reaming two-thirds of the way to the apex. Beyond that care must be exercised lest the drill be forced through the curve or to one side. A very fine spring-tempered probe may find the way through.

The first and second bicuspsids are usually entered through proximal cavities. Either mesial or distal cavities, especially the distal, should be opened nearly to the center of the crown upon the long axis of the tooth, so a broach or drill will not be bent unnecessarily. The floor of the cavity should be opened sufficiently that no undercut remains between the cavity and the pulp-chamber.

In the first upper bicuspid there are almost invariably two canals if not two distinct roots. Here we have the pulp-chamber more or less distinct from the root-canals. These canals, situated at the extreme buccal and lingual sides of the pulp-chamber, are usually quite slender and may be difficult to locate. A safe method is to use a rather large round bur and cut a clean base to the pulp cavity, carrying well to lingual and buccal, removing all sharp edges and overhanging shoulders of cavity opening. A fine smooth broach will usually locate these canals and give a fair estimate of curve, length and direction. The canals being located, they may now be opened with large G. G. drills, following with the next size. In the second bicuspid the pulp-chamber and canal are less distinct, as the single canal is usually larger and extends from buccal to lingual of the chamber.

A bicuspid pulp sometimes dies after the tooth is well filled, or even when there is no cavity. In that case the tooth should be entered through the center of the crown with a small, sharp, plain drill, and this opening should be so enlarged that every portion of the pulp-chamber may be cleaned. This opening is often made too small to allow of good access.

The buccal roots of the upper molars and the mesial roots of the lower first molars probably present the most difficulty. A study of the anatomy of the teeth gives us some guide. In the first upper molars the roots are normally well apart, the anterior buccal root leaving the neck of the tooth as an extension of the mesio-buccal cusp or lobe, and curving to the mesial, while the disto-buccal root leaves the neck of the tooth as an extension of that lobe or cusp, but in a distal direction. The apices of these roots may turn toward each other more or less. The lingual root is larger and projects well into the palate. In second molars the buccal roots are closer together and leave neck of tooth on more parallel lines, though both may curve distally. The lingual root does not spread away so much to the lingual, and any two or possibly all three roots may unite.

In upper molars with fair-sized mesial cavity there is no great difficulty of access, the main hindrance being in reaching the anterior buccal canal. Too often the posterior canal is mistaken for the anterior. If there is trouble in reaching this canal through the mesial cavity, how much more is there if we work through a distal cavity? Now surely we must open well into the crown of the tooth,

even though we sacrifice a considerable portion of good tooth substance. All overhanging shoulders and undercuts must be cut out or beveled to orifice of main opening to enable operator to see every portion of floor of cavity, especially to openings of canals. If there is no proximal cavity, gain entrance with a sharp, plain drill from the mesial side and toward central portion of crown, and enlarge this. If there is either mesial or distal cavity, open from this to central portion of crown. In either case open.

In either upper or lower molars good access to pulp-chamber may be had through large buccal cavities by extending into crown. If buccal margin is low, build up temporarily to hold dam. Having opened well the orifice through which to treat, excavate and cleanse. Now locate all the canals with a fine broach; in normal teeth the lingual is easily found, and so, perhaps, is the disto-buccal. The pulp-chamber is usually located partly in the crown and partly in the neck of the tooth, so that the anterior buccal canal may be beyond neck of tooth, and in curve of root, hence far forward. If only one buccal canal is found, note its direction with regard to supposed direction of buccal roots, and then, with a large round bur in either a straight or right angle handpiece, cut out in the direction the canal should be. Blow out chips and examine frequently with broach. Never use a small drill or small bur for locating a canal; there is too much danger of going in the wrong direction, and if a deep cut is made next to canal it troubles constantly when you pass into the right one. The orifice of the canal opening from the pulp-chamber may be round or flattened, large or small. If small, and either round or flat, its orifice should be enlarged with largest G. G. drill, so that instrumentation or treatment may be easily made. The rest of the canal may, if necessity demand, be enlarged with the next size drill until it can be cleansed and treated with a fair degree of ease and certainty.

Lower first molars are perhaps more trying than the seconds, as their roots divide closer to the crowns, and the mesial root, as it leaves the neck of the tooth, usually slants first to the mesial from pulp-chamber, thus bringing the openings of the canals well under the shoulder of dentin between the front of the tooth and the chamber. Hence enough should be cut away to give the operator a chance to reach that canal from a distal direction. Too much emphasis can not be laid on the question of proper extension of cavity for access.

In lower second molars the canals are closer together and more nearly parallel.

The canal portion of the lower incisor is much flattened from labial to lingual, the longest diameter being at the gingival line. It grows thinner as it nears the cutting edge, but somewhat broader from mesial to distal. It contracts gradually toward the root and blends with the canal in a slit-like opening extending through the greater portion of root. In many instances, however, on account of the thinness of the root, the canal may be divided for a portion or possibly for all the way. This division may begin at the gingival line or below it, usually uniting into a single apical foramen. As age advances these canals often become exceedingly minute. Access may be gained through a mesial or distal cavity, which must be extended pretty well toward the cutting edge, or through the lingual side, in line of the long axis of canal. Here again must the shoulder, formed between the canal opening and the cervical border, be cut away so an instrument may pass with little or no bending. On account of the thinness of root from mesial to distal, great care must be exercised that a drill is not forced through the lateral wall. Cavities must be extended toward the cutting edge enough to permit thorough excavation of the chamber.

Lower cuspids, when treated, are entered in a similar manner, i. e., either through a proximal cavity or through the center of lingual side. The same care must be given to cutting away the shoulder or borders to allow of free access in line of long axis of canal. In the lower cuspid it is well to bear in mind that there may be two distinct canals with separate apical foramina. Should the entrance be from a proximal cavity that did not open much on the labial side or cutting edge, it should be extended far enough to lingual to give most direct access to canal.

Lower bicuspid are often difficult of access because of their position in the jaw, i. e., the position of crown on root; and because of the fact that their buccal cusps are carried so far over to lingual, thus bringing the thickest portion of enamel over the central or long axis of canal. In extending either a mesial or distal cavity toward the center of the crown, it can be done by cutting up from beneath, that is, by undermining the dentin and then cleaving off the enamel. When a lower bicuspid must be entered either through the crown or through a good filling, extreme caution will be necessary lest the



drill is forced through the lingual wall at neck of the tooth, as the crown is placed on the root at a marked angle, and the neck of the tooth is much constricted.

Access is not unfrequently obstructed by pulp-stones. In the single-rooted teeth these deposits are usually round and easily dislodged. In molar teeth they may be small and round, or they may be large and irregular, nearly filling chamber. In the latter cases, with a good general knowledge of the size and shape of pulp-chambers, there can be no harm in cutting away freely with large round bur until the edges of this growth can be outlined. Then it can be pried out or chipped away.

Sometimes a case is presented in which there is exposure of pulp through a small, deep cavity, say on the buccal side of a tooth, close to cervical margin—a cavity that can be excavated and filled, but through which it would be impracticable to remove pulp or treat tooth. In such cases excavate and apply treatment for devitalization of pulp, and fill permanently with expectation of opening through a more convenient point of access, when the pulp-chamber may be extended to original treatment, which may be now removed and chamber then extended to sound portion of filling without cutting away the coronal portion over original cavity.

As an aid in finding canals and gaining access, dilute sulphuric acid, followed by bicarbonate of soda, is often used. The acid not only disintegrates the decomposed pulp structure, but enlarges the canals by its solvent action on lime tissues. The acid is neutralized by the bicarbonate of soda, the effervescence so caused bringing out many small particles of debris not otherwise reached by broaches. Again, when neutralization and effervescence have ceased and the cavity has been dried by hot blast, the walls of cavity and canals are covered with a thin deposit of soda, and a canal will sometimes show a dark spot which has not been noticeable before. It is not advisable to use sulphuric acid in recently devitalized teeth; 3 per cent pyrozone, or peroxid of hydrogen, or peroxid of sodium, may be employed.

Discussion. *Dr. A. C. Runyan*: I do not feel that the Gates-Glidden drills are safe enough to use, so I locate the canal openings with sulphuric acid and open into same with a broach, applying more acid by dipping it into the latter and carrying to tooth.

*Dr. C. P. Wood*: I do not believe in reaming out a canal pre-

vious to filling of root where a pin crown is to be used, nor in enlarging at all, for the smooth sides of canal will allow the passage of pin better than any large opening I can make.

*Dr. J. N. Crouse:* I consider it bad practice to ream out canals, as the natural surface is thus disturbed. In forty-nine cases out of fifty I successfully remove pulp entire with cotton wound around a smooth broach and worked into canal. The use of sulphuric acid as advocated by the essayist is bad except in extraordinary cases, for it will usually go through the foramen and cause the patient much pain and trouble.

*Dr. L. P. Hall:* I use the drills only where the canal is twisted or small, and sometimes I remove the greater portion of the pulp with them, finishing with the broach. I break drills occasionally, but before using them I broke a much larger number of broaches than at present.

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**DRY STORAGE BATTERIES.**—In the *Centralb. fur Accumulatoren und Elementenkunde* Herr Liebenow discusses the question of dry storage batteries, and states that in his opinion no attempts in this direction are likely to be successful. It has been shown in investigations into the action of secondary cells that there are electrical concentration currents set up which tend to convey the acid in the pores of the plates from points of maximum to points of minimum concentration. These currents are necessary to equalize the strength of the acid, and effect this far more readily than would be done by diffusion acting alone. When a gelatinous electrolyte or a dry, nonconducting powder is introduced between the plates, this equalization is prevented, and the cell is soon exhausted.

**COMMON BUT GENERALLY UNRECOGNIZED SYMPTOMS OF EYE-STRAIN.**—Starr (*Jour. A. M. A.*) calls attention to frequent symptoms of eye-strain other than headache. One of the most common of these is pain in the back of the head. This sensation is often described as a pulling or drawing, or a tense feeling. The pain, radiating down the back and to the shoulder, is frequently mistaken for rheumatism. He considers this condition as almost pathognomonic of eye-strain, as it is frequent in about eighty per cent of all cases of refractive error presenting themselves. Another symptom which he classes under this head is mental confusion, or confusion of ideas, or an inability to fix the attention upon a particular object of thought without great effort. Patients not infrequently speak of this symptom, and observe that it is more troublesome the more the use of the eyes is demanded in the performance of their task. Closely allied to this condition of disturbed mental processes, and possibly in part depending upon it, is mental inaptitude or backwardness in children. He also mentions as probably the most frequent of all the results of eye strain, disturbances of the digestive apparatus.

## Digests.

**INLAYS, THEIR ADVANTAGES AND LIMITATIONS.—**  
By C. N. Johnson, D.D.S., Chicago. Read before National Dental Association, July 10, 1900. The demand for inlay fillings arises chiefly from two factors which present themselves in the problem of saving the natural teeth when badly affected by caries. The first of these relates to the unsightliness of most metal fillings when exposed to view in the anterior part of the mouth, and the second to the fact that in many instances of extended caries the insertion of foil fillings proves too great a tax on the patient.

There are certain cases where, by the judicious use of inlay work, ideal results may be obtained, but there are a vast number of others where the conditions are such that inlays can not by any possible means be made artistic and permanent. In alluding to the artistic features of inlay work reference is of course made to porcelain inlays, and it is doubtless true that a properly constructed porcelain inlay is more artistic in appearance than any other kind of filling-material. But when this is said, almost all is said that may be in recommendation of this kind of work. The simple fact is that in the very cases where the greatest need is manifest to avoid conspicuous operations porcelain fails in other important requisites to a degree which renders its use almost prohibitory.

For instance, in a long, thin, translucent central or lateral incisor with an approximal cavity which involves the incisal angle, we have a type of case which calls not only for harmony of color, but for some material which possesses great strength in a given bulk. It is here, if in any place, that appearance is important, and in no less a degree is it necessary to reproduce the lost angle with a substance which is capable of withstanding attrition and not suffer displacement or fracture. Porcelain, when carried out into thin edges, such as are sometimes called for in these cases, has not the requisite strength or toughness to do extended service in the majority of mouths. It will not do to point to a few isolated instances where porcelain has proved satisfactory in such cases, and argue therefrom that it is always to be depended upon. In some mouths the volume of usage on a given tooth is very small, and any kind of a filling-material will do service, but these are the exceptions.

It must be acknowledged that a perfectly condensed gold filling is infinitely tougher and less friable than porcelain, yet even the best inserted gold fillings are sometimes inadequate to the strain. Then the question of anchorage is often an important factor in these fillings. With the incisal angle gone and the necessity existing for its reproduction, a certain area of the inlay is exposed directly to the force of attrition, and the anchorage afforded by the cement can not be considered sufficient to maintain the inlay in place for any extended use. It has been found that in the insertion of gold in these cavities, with all the nicety of adaptation possible, and with the greatest density and strength, failures have too frequently occurred through displacement of the filling from the incisal anchorage, so that observant operators are quite generally resorting to the plan of anchoring these fillings by drilling across the incisal portion of the tooth and making an anchorage at right angles with the approximal cavity. This seems the only certain method of locking these fillings securely in place, and it is a method which can not in ordinary cases be successfully followed with porcelain. Even in those instances where a perfect alignment and form can be given the inlay, the lack of strength at point where approximal joins the incisal portion is always an element of weakness. The filling-material must be especially tough at this point to prevent breakage, and, as has already been intimated, porcelain is too friable to be subjected to this kind of stress.

Another important factor in these cases is the protection of thin enamel. With gold—or better yet, with platinum and gold—a wall of enamel may be adequately protected by building the filling over it to the thickness of one-half a millimeter, while porcelain, to afford any protection whatever, must be laid on in appreciable bulk. At best porcelain must be considered a poor protection to thin enamel-walls, even where it can be successfully built over them.

It will thus be seen that in many of these very conspicuous cases the indications are almost wholly against porcelain inlay work, so far at least as permanence of result is concerned, and in passing it may be well to call attention once more to the possibilities of platinum and gold in this particular class of cases. The shade may be so varied with this material as to take away the extreme yellow luster of gold and produce fillings which are never glaringly conspicuous, and which are immeasurably more reliable and secure

than the best possible porcelain inlay. A closer study of this material on the part of the profession will accomplish much in the way of disarming the persistent criticism against display in American dentistry, a fact frequently pointed out by our good friend, Dr. H. J. McKellops. And yet, as has been stated, there is no metal filling which can quite take the place of porcelain in appearance, and it should be our aim to study the possibilities of porcelain and adapt it to those cases where the indications are favorable to its use.

Such cases are represented by all cavities which are not exposed to attrition, but which are freely exposed to view. Those with a broad opening to the labial—particularly those occurring in the gingival third of the labial surface—may be accounted typical cavities for porcelain inlays. It is here that artistic and serviceable work may be accomplished, provided the operator attains a mastery of shades. This question of shading becomes a matter of very great importance in its relation to artistic results, and this, if there were no other reason, should determine the selection of bodies for such work which fuse at a temperature sufficiently high to assure permanence of color. The bodies which are capable of being fused on gold can not be relied on to permanently maintain their color in the mouth, nor are they so strong in the given bulk as the higher-fusing bodies. If porcelain inlays are indicated at all, the very best and strongest and densest porcelain is none too good for the purpose. The present clamor for short-cut methods in this kind of work is calculated to lead to such imperfections as will eventually bring the work into disrepute, and throw doubt on an otherwise legitimate line of practice.

The indications for inlay work, aside from esthetic considerations—viz, the undue tax on the patient in the insertion of large foil fillings—apply particularly to molars and bicuspid. It is here that inlays really may be made to answer the most useful service. In cases where an appreciable portion of the crown is gone inlays of gold may often be inserted to good advantage, and thus save the patient the tedium of a protracted filling-operation. These inlays of gold may be used in very many cases where operators have been in the habit of crowning teeth. It is often a nice point to decide where fillings shall stop and crown-work begin, but if the operator has a true conception of the possibilities of gold inlays he may frequently save himself any doubt in the matter by employing this

ready method of closing the gap between filling and crowning. A tooth with any appreciable portion of the crown missing has in later years quite generally been consigned to excision of the remaining portion for the purpose of inserting an artificial crown, quite irrespective of the condition of the part still standing. This is hardly living up to the highest possibilities of dentistry, because the history of crowns in the years to come will go to prove that the best interests of the patient will be conserved by deferring crown-work as long as possible. The serviceability of many a tooth may be prolonged for years by the judicious employment of inlays in those cases where there has been so great a loss of tooth-tissue as to make the insertion of a filling injudicious. The tenure of service of the inlay may be logically added to the ultimate life of the tooth, from the fact that when the inlay fails the tooth may then be crowned with as great a promise of future usefulness as if it had been crowned at the outset. In pursuance of our work upon the natural teeth we should have in mind not only the comfort of the patient at the moment, but the greatest ultimate length of service that we can secure for the organs operated on.

One very favorable feature of gold inlay work relates to the adequate protection it affords to weak walls surrounding the cavity. It is in this respect that gold inlays are vastly superior to porcelain inlays. In preparing cavities for gold inlays the frail enamel may be freely ground and extensively beveled with the assurance that the edges of the inlay when built over them will prove an all-sufficient protection against wear or fracture from impact of mastication. In fact, this is one of the cardinal requirements in preparing these cavities, that the margins of the cavity, particularly those in the occlusal region, be very freely beveled so as to admit of a perceptible overlap of the inlay. A degree of bevel may safely be given the enamel for these inlays which, if employed for foil fillings, would prove an element of weakness to the margins.

Another feature connected with these extensive bevels would seem worth mentioning, viz., the fact that the cementing substance used for holding the inlay in place appears to be in a measure protected by the overlying margin of the inlay. If these cases are carefully examined some time after their insertion it will ordinarily be found that the cement is dissolved out for a short distance under the extreme margin of the inlay, but that the dissolving out seems

to stop at this point and does not penetrate far enough to jeopardize the inlay. This has been noted so frequently that it has proved a matter of considerable encouragement, so far as the permanency of cement under gold inlays with extensive bevels is concerned.

It was formerly the impression of the essayist that the cementing material was invariably an element of weakness in the use of inlays, but a more extended observation would seem to indicate that we have little to fear from this, particularly with these gold inlays and a high-grade quality of cement. It is with inlays, as with every other line of our work, that the real test after all is the test of extended practical experience, and no amount of preconceived opinion can have weight against this kind of evidence. So many of these gold inlays have been examined after years of service, nearly all of them presenting this peculiarity, that it would seem impossible to doubt that where due care has been exercised in the adaptation of the inlay and a good grade of cement used, little fear need be had as to any serious washing out of the cement.

But as to the relative merits of fillings and inlays in general, it may be stated that in the vast majority of cavities presented for our treatment fillings are infinitely more serviceable than inlays. The requisites for inlay work are in many respects so arbitrary as to prevent the possibility of its being at all universally applicable. A cavity must be cut in such a way that the orifice is more widely extended than the interior, and in many instances this involves the breaking down of strong walls which with ordinary filling-operations might be allowed to remain. For instance, in an approximo-occlusal cavity in a bicuspid where the decay has extended well around to the buccal and lingual surface at the gum-margin, but where the walls of the cavity are strong and well supported near the occlusal region, it would be a very radical procedure to cut away the buccal and lingual walls parallel with the decay in the gingival region, as would be necessary to properly fit an inlay. It would not only be a tax on the patient, but would materially weaken the tooth. This is only one of the many cases where a perfectly fitted inlay would involve too serious a sacrifice of strong walls, and this may be said to apply as well to incisors as to bicuspid and molars.

There are numerous cavities which may be made to receive a foil filling without any exposure to view, but which if sufficiently

opened out to receive an inlay would thereby be rendered conspicuous. In fact, in the majority of cavities the insertion of an inlay involves the extension of the cavity outlines to a degree unnecessary in an ordinary filling; and while this extension is often a safeguard against a recurrence of decay in bringing the line between inlay and enamel to a point where it is readily kept clean, it sometimes leads to unnecessary exposure of the operation. No method of reproducing lost enamel can ever quite equal in appearance the natural tooth-structure, and the less conspicuous our operations are made the nearer we are likely to approach artistic perfection in our work.

One other factor in connection with inlay work relates to the greater expenditure of time necessary where inlays are used than when ordinary fillings are inserted. It is true that the element of time is a minor matter when considering the accomplishment of the highest class of service to our patients, and yet in the daily routine of office practice time becomes important. With a cavity of average size it is conservative to state that a gold filling may be inserted in one-half the time required for an inlay, and the resultant operation will at least prove equally permanent, so that this feature of the case can not well be ignored.

It may therefore be said in conclusion that the legitimate use of inlays is quite narrowly restricted to those exposed surfaces where artistic effects are very important, and to the cases where the tooth-tissue is so extensively broken down as to make the insertion of a foil filling too great a tax on the patient. To employ inlays outside of these indications is either to misconstrue their true function, or to let enthusiasm overbalance judgment.—*Cosmos, Sept. 1900.*

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**AMPUTATION AND LONGEVITY.** A prominent manufacturer of artificial limbs says: "By looking over books which comprise the history of many thousand cripples we arrive at the conclusion that dismemberment plays no part whatever in shortening life. Our records date back to 1853, and it is an astonishing fact, that of the entire number of our patrons less than 25 per cent have died, and most of those from old age or accident; and in no case can we learn of a death that can be directly ascribed to the loss of a limb. As we investigate this subject more thoroughly we are persuaded that amputations enhance vitality; render it not only probable, but positive, that on account of amputations the lives of the



subjects will be prolonged and free from disease." No record can be found of a cripple becoming insane, and but very few cases where they have committed suicide. The mental as well as the vital forces appear to become strengthened by the dismemberment.

It is a noticeable fact that persons who lose their legs become very powerful in their arms, large in chest, and great in girth, and persons who lose their arms become powerful in their legs and large of girth. The loss of parts of the body conduces to health, life and development. Dare, Melrose, Conway, Leland and Fitzpatrick, one-legged acrobats whose muscular developments are the envy of the world, have never been surpassed by athletes with natural limbs.

A reasonable explanation may be found in the hypothesis that the removal of a part of the body lessens the demand on the vital forces and permits the supplying reservoirs to contribute more abundantly to the remaining members. If it overtaxes the heart to force the blood through all the avenues of the body, will not its labors be lessened if a few of those avenues are forever removed? And will not the remaining avenues receive a larger proportion of the life-giving essences? If the nervous system is overburdened, will not the tax be lessened if a part of the nerve organization be removed? If a tree be permitted to grow, it will sap itself by the many choking branches that come from its trunk. The cutting off of these branches and the trimming up of the limbs always gives new vigor to the tree. It will grow larger, stronger and will live longer. A cripple is not a pessimist. His misfortune has driven from him whatever there may be of the misanthropic. His health is always good, and he is happier and more contented than the dyspeptic or rheumatic. Nature, with her usual generosity, compensates for misfortune. Those who seem the most afflicted are often happiest; their minds have been prepared to endure misfortune.—*Med. Age.*

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**GASOLIN AS A DETERGENT.** By Bruce L. Riorden, M.D. I have been using gasolin for the past four years in cleansing the field of operation, in cleansing traumatic wounds and in the subsequent dressings of all classes of wounds—not using water or other lotions or solutions. I was led to use gasolin, first, for the purpose of cleansing from injured parts what railway employes call black oil. While working an accident occurs—fingers are crushed, for instance. The injured person comes under the surgeon's care. His

first duty is to see that the injured parts and the surrounding tissues are made surgically clean. Soap and warm water with a brush have been the usual means employed; also ether, alcohol, etc. I found the process to be slow, painful and not always thorough, as we understand surgical cleanliness, and the idea of using gasolin as a detergent readily suggested itself—as this substance has been used for years to cleanse grease-stains from clothing, gloves, etc.

I find that it does not irritate fresh wounds or granulating surfaces—any more than water does. It is best applied by taking an ordinary “wipe” of cotton batting or sterilized gauze, and wiping the parts. The gasolin immediately evaporates and leaves the surface dry and perfectly free from grease. This will be found an advantage where sectional strapping by adhesive plaster is to be used, as the plaster adheres much more firmly when the skin is free from any oily substance.

My results, so far as early healing and absence of infection are concerned, have been most satisfactory, and include the treatment of all classes of wounds, and I cannot too strongly recommend to the members of this association gasolin as the best surgical detergent.

I am indebted to my friend, Dr. Goldie of Toronto, who is a practical bacteriologist, for the following notes on its action as a detergent and antiseptic. He says: “Weighed scrapings from the same arm from areas roughly two square inches were plated out, after washing with soap and water for five minutes and after scrubbing with gasolin for two minutes, also without any preparation. Unsterilized skin gave 173 colonies, soap and water scrubbing gave 20 colonies, gasolin, 2 minutes’ scrubbing gave 16 colonies. Scrapings from skin—scrubbed with soap and water, then dressed with 1 to 60 carbolic acid over night, gave for same weight of scrapings 22 colonies. Gasolin poured on skin without rubbing gave 84 colonies; repeated with scrubbing with cotton wipe gave only 7 colonies. *Staphylococcus pyogenes aureus* smeared on the skin as a film remain alive at the end of two minutes exposed to gasolin.”

I need hardly caution the members about the dangers of gasolin, but would just remind them that it is very inflammable, so should not be used carelessly about an exposed light. If it gets into cavities, such as the ears or eyes, it is irritating, just as chloroform or ether is. If applied to a surface where it can rapidly evaporate, it gives a cooling, pleasant sensation.

In subsequent dressings of wounds you may find the dressings adherent about line of incision or suture. Squeeze a few drops of gasolin on the adherent dressing and you will find that it can be readily detached. If you want to remove sutures from wound, and they are masked by iodoform and exudations, gasolin on a wipe, gently applied, will clear your field. It dissolves iodoform and exudation, then immediately evaporates, leaving a clean, dry surface. You can readily find your sutures and remove them.

Microscopic appearance of the skin after scrubbing with soap and water, and after wiping the skin with gasolin, showed that the cleansing effect of the latter went much deeper and cleaned out hair follicles, sebaceous glands and sweat ducts much more perfectly than the former could do.—*Railway Surgeon, April, 1900.*

\* \* \*

**CONSCIOUSNESS DISAPPEARS THUS.** Among the physiological effects the following are the principal. The respiratory rhythm is accelerated and irregular, pulse more feeble and less frequent, arterial tension and temperature abated, blood becomes black, diminution of red globules, increase of white; these phenomena are well known. The accompanying physiological phenomena may be ranged chronologically in four groups: First, heaviness or dullness, numbness or torpor; second, disassociation and abolition of the different forms of sensibility; third, loss of consciousness; fourth, muscular relaxation, or the anesthetic of motility.

The cutaneous sensibility is the first to be affected, and delicacy of touch is at once lost, next sensibility to pain and to heat and cold. Then the grosser touch, or sensibility to contact. This anesthesia proceeds from the extremities to the trunk, then it affects the upper part of the thorax and the abdomen, then finally circumscribes the cephalic region, neck, forehead, left temple, afterwards the right.

A very curious and little known fact—sensibility does not give way from the two sides at the same time, but the hemianesthesia is established first on the left and extends by degrees to the right. The last organs affected are the cornea, and the part of the buccal mucous membrane near the cuspids. When these points are touched the anesthesia is complete.

In the same order the loss of sensibility involves muscular relaxation. The masseter is the last muscle to yield, and pupillar reflex

continues to the end. When the general sensibility disappears, the insensibility necessary for the surgeon is complete. There sometimes, however, remain traces and residua of tactile sensibility, and a certain profound and muscular sensibility.

As regards the special sensibilities, they are less spontaneous and yield later at the time of muscular relaxation. This condition continues long; tremulous vibrations similar to those received by the touch from a vibrating body or a large sonorous clock are heard. These acoustic phenomena, in the majority of persons, seem to constitute the foundation of anesthetics, and they assume importance in proportion to their progress. They seem at first as though the tympanum were put in vibration with roarings, sounds of clocks, incessantly increasing to a volley of sound, sometimes aggravated to a crash, and again attenuating in rhythm, ending finally in sleep. These roarings continue some time after general cutaneous anesthesia.

Vision, too, preserves some functional action, surrounding objects begin to be agitated, and a thin veil intervenes between the exterior world and the visual sense. The other senses yield by degrees, taste, sensibility to tickling, perception of odors, etc. If creosote be presented, in the case of chloroform, the substitution is not perceived. In fine, in the gradual enfeebling of the senses, almost to obliteration, all are overwhelmed by the power of the acoustic sounds. Lingual difficulties manifest themselves, words fugitive or incapable, evanescent ideas, and, if thought is possible, it is maintained with great difficulty. Sometimes there is an increasing diminution of attention and an impossibility of fixing it, sometimes a feeling of physiological impotence, as if all the organs were removed, and all action become impossible. It is this feeling that renders anesthesia sometimes so agonizing.—*Revue de Hypnotisme.*

\* \* \*

TEXTURE OF PRESENT OR FUTURE DENTINS CAN BE IMPROVED. By E. L. Clifford, D.D.S., Chicago. About twelve years ago Mrs. P. called my attention to the condition of the teeth of her first child, a girl two years old. It was a case of extremely defective structure, early decay and many alveolar abscesses. Hygienic treatment, local and general, was employed, imperfectly of course, but the best was done that could be at that age. No tooth was extracted, but one by one each received the proper care. All the elements of natural therapeutics that possibly could be utilized

were taken advantage of, the food received attention, open air and exercises were enjoined, the patient put on an antirachitic course of cod-liver oil and calcium lactophosphat.

The second dentition is full, regular and of good texture, only two teeth requiring fillings up to this time and those the first molars. The teeth of both parents were exceptionally poor, the father at the age of 35 wearing a full upper bridge with a partial lower one, and the mother with few teeth without one or more fillings. I cannot in this family eliminate certain elements of heredity, and looked for defective structure in all of the offspring.

Two-and-one-half years after the birth of the first child the second daughter came. Being in close touch with this family, and having aroused their interest in the possibility of improving the dental organs, I was informed, as I had requested, when the mother was again enciente. Her physical condition was made the object of deep interest, and I succeeded in obtaining an extra effort on her part to live a strictly hygienic and physiologic life during that period. The food was carefully selected, surroundings given careful attention, emunctories properly stimulated, alimentary tract kept in as nearly aseptic condition as possible, mind freed from care and in the midst of as pleasant social surroundings as possible, while open air, sunshine and exercise received due attention. A teaspoonful of lime-water was introduced with the food each alternate week during gestation.

The child at the age of eleven and one-half years has never required a filling in the permanent teeth, although I did fill one or two of the deciduous. After a lapse of seven years the third daughter was born, and now at two and one-half years of age has as perfect a dental apparatus as could be desired.

Is this all accident? And would these same results have been obtained without attention?—*Alkaloidal Clinic, Oct. 1900.*

\* \* \*

**CHEMICAL EROSION OF THE TEETH.** By Dr. Leon Frey, Paris. Read before the International Dental Congress, at Paris, August, 1900. "Chemical erosion," quoting from Bödecker, "is a term applied to express a process by which the teeth are eaten away and destroyed, principally upon the labial surface, and near the cervical border." It is characterized by its hardness and its polish. American authors apply the name abrasion to mechanical wear of

the teeth, and give the name atrophy to those congenital structural affections which in France are known as erosions.

*Description.* On those large, white, glittering teeth not covered with tartar, usually near the neck, sometimes even on the face, there occurs a loss of substance which originates in a point very limited, but little by little increasing in size. The little hole or groove becomes progressively an excavation, as though cut out with a punch. Ordinarily like a cup vertical to the tooth, the erosion presents an appearance triangular at the summit, directed towards the pulp, and in a rounded base. Its dimensions vary, and may be limited to a horizontal loss of substance, a groove at the neck, or it may attack the whole face of the tooth, invading the whole of the crown. An observation of Michaël's describes a right upper cuspid with the whole of its labial surface eaten away for nearly half its height, like the mouthpiece of a flute. These defects appear most frequently on the labial surface, sometimes on the interstitial surfaces, and more rarely on the lingual. Their borders are sharply defined as though cut with a saw, and the lower is always more accentuated than the upper; sometimes, however, they are blunted. The surface more usually appears glittering and polished. To the naked eye not the least irregularity is to be seen, though Znamensky has shown under a strong glass that certain saucer-shaped cavities are visible. In certain cases these cavities are more sharply defined and visible to the naked eye. On the number and size of these depressions depend the modifications noted on the surface of the affected parts, as at the bottom the brightness and glitter is gradually lost, and may give place to a rough and uneven surface.

The color of the erosion is variable, and usually it is the same as the tooth, polished and glistening, but it may also be dark yellow, or brownish, or even almost black. The same place may present several colors; the center is dark, and the circumference lightens, and gradually blends with the normal tints of the tooth. The consistency varies in like manner, and the darker the center the more resistance it offers to scraping. When the surface is rough it is less hard and less sensitive. This sensitiveness is apparent on the approach of anything cold, of sugar, of acids, or to the contact with an instrument, a brush or the finger-nail. The sensitiveness of the surface eroded is not always the same; when the dentin is not discolored it is very sensitive even to a very slight touch, as that of the

nail; but if the dentin is dark or brown the sensitiveness is less quick. This, while it varies in different erosions, varies even in the same erosion, which may be more sensitive during a period of nervous excitement, or an attack of dyspepsia. In the latter case it may be a question of hyperacidity of the saliva, or a secondary nervous excitability.

The author then goes into the question of how the erosion develops. First, the gum begins to be retracted; according to Bödecker the gum is always inflamed and retracted; the neck of the tooth is laid bare, and a layer of cementum disappears, exposing the dentin, on which form little saucer-shaped cavities separate one from the other. This erosion deepens little by little, but its progress is usually slow, although on teeth not very strongly organized, as Znamensky says, it rapidly deepens. Then commences the reaction of the pulp by means of secondary dentin, which sometimes forms in such abundance that it completely refills the cavity. It may happen, however, that the erosion gains in depth in spite of this secondary dentin, until it reaches the other side of the tooth and destroys the crown, and when the progress of the affection is rapid, even though it may last several years, the pulp may never gain the time to defend itself, and so inflames and mortifies.

Front teeth are more frequently attacked than those behind, and, according to Franck, the right rather than the left; cuspids, according to Bödecker are more liable than incisors, though Black directly differs from him. With regard to the number attacked it also varies, and one tooth only may be attacked; though cases are cited where all the teeth have shown signs of chemical erosion. Again, the same tooth may be attacked in several places, and those of the upper jaw more frequently than the lower. Frequently also similar teeth are attacked in both jaws; when the arch is irregular those teeth forced inward are rarely affected.

The author then turns to the etiology and treatment of chemical erosion. The treatment he divides into three main headings: (1) General medical—as anti-arthritic, anti-rheumatic, and anti-gout. (2) Local medical treatment—as the application of a soft brush, or at least by being careful to brush lightly over the surface of the erosion, the employment of alkaline dentifrices, of antacids: gum arabic and saccharin (Paul.) (3) Surgical treatment; in regard to the lips: ignipuncture of the labial glands (Michaëls); in regard to

the teeth: to reduce the sensibility of the erosion; by cauterizing by nitrat of silver, by chlorid of antimony, which has the advantage of not blackening teeth; by filling the cuneiform erosion, using gold by preference, and by capping teeth in certain cases.

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**PORCELAIN ROOT SUBSTITUTED FOR DISEASED ROOT OF A MOLAR.** By Dr. M. L. Rhein, New York. Read before N. Y. Odontological Society, April 17, 1900. The two artificial roots I exhibited in the mouths of two patients at the clinic this afternoon may be described as "heteroplasty following the amputation of the natural roots." The name "heteroplasty" is the one commonly used by the general surgeon, and signifies the substitution of some foreign substance for some removed portion of the human body—for example, the placing of an artificial bridge in the nose. I had intended to defer making this operation public for some time, but changed my mind for fear that if I waited too long I would find some one patenting the operation at Washington, thus adding one more patent to the already numerous list. In order to prevent the occurrence of such an incident I deemed it wise to make a preliminary exhibit of the two cases to-day, although the first root has been in place only six months.

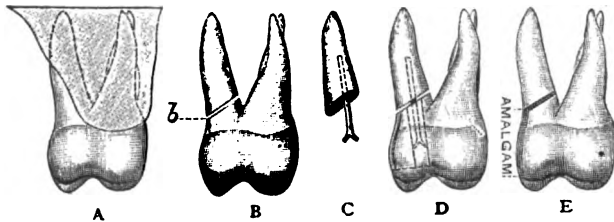
The operation of amputating a root of multi-rooted teeth is not new. Its value is well known in those teeth where all the alveolus around one particular root has become absorbed, and where the root remaining without any bony covering is nothing more nor less than a foreign body. In such cases it becomes a menace not only to the remaining good roots, but also to the surrounding teeth, and is very injurious to the health of the patient, as any one may imagine who saw me to-day squeeze pus out of the palatal socket of the corresponding molar on the opposite side to which the heteroplasty was performed. For almost every gentleman who looked at that mouth I was able to squeeze some pus from the socket of the unoperated tooth, showing the necessity of removing the palatal root from this molar. That the gum around the artificial palatal root on the opposite side was in a healthy condition was made evident by the inability on pressure to produce the slightest degree of any exudate. By means of these crude drawings I will endeavor to illustrate the technique pursued in these operations.

Fig. 1 represents the method followed on an upper molar, as in



the cases shown this afternoon. A nearly indicates how the molars of both of these cases presented themselves before the operation was performed, showing about half the palatal root to be exposed. The pulp was first removed and the roots filled. In the tooth in the young woman's mouth the pulp was alive when she first presented herself, although there was absolutely no attachment to any portion of the palatal root. With an ordinary fissure drill it takes but a very few minutes to sever the root from the crown at the point indicated in B. You will find the roots in this little box which I pass around, and also duplicates of the porcelain roots which replace them. The porcelain root as shown in C is made in the following way: The amputated root is covered by fine paraffin, in order to

FIG. 1



make its surface thoroughly smooth. An impression in plaster of the root is then taken in two halves, as in order to obtain the best results it is necessary that the porcelain substitute should be baked in two separate parts. With these impressions we next proceed in the same manner as in making an ordinary porcelain inlay. We now have two platinum matrices, each one representing a portion of the shape of the desired root. The sides of each matrix are first stiffened by baking a little porcelain on it; more is then added, and before the body is flush with the top of the matrix the platino-iridium pin which is to enter the crown is placed in proper position in one of the matrices. After the two parts are completed, the sides which are to come together are ground so they will fit accurately in the same manner that we would grind a porcelain tooth in order to obtain a proper joint. The platinum is then stripped from the half without the pin, and the surplus platinum from the remaining matrix burnished around this half in order to keep the two parts in perfect juxtaposition. The sides, having been previously painted with a thin film of body, are then placed in the furnace and fused together. The platinum is now stripped, any little sharp

edges around the joint are removed by grinding, and the entire surface painted with a very thin film of body. It is returned to the furnace for the last time, and the heat turned off just prior to the stage of glazing. This leaves the artificial root a very good reproduction of the amputated model, as shown in C. We enlarge the cavity in the crown of the tooth, D, so as to include the palatal sulcus, which would be found necessary in order to permit the pin to enter the crown. The porcelain root is then placed under the gum where the old natural root rested, and the pin drawn up in position against the crown of the tooth. Care being taken to have the part thoroughly dry, *Fellowship* alloy, mixed soft, in sufficient quantity is then forced into the crown of the tooth and in the interstices around the root, making a joint such as was seen in the young woman's mouth this afternoon. The finished operation is shown in E.

FIG. 2.

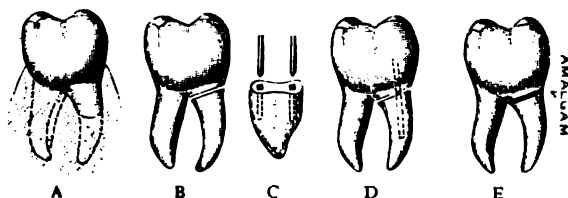


Fig. 2 exhibits the operation of replacing the amputated anterior roots of a lower molar. A is a fair illustration of the root prior to amputation, showing the gum-line and amount of the exposed portion of anterior root, the dotted line showing amount of root supposed to still remain underneath the gum. I had this case under treatment three years, trying in vain to get it in a healthy condition. Although the deposits were frequently removed, yet as I pass around the amputated root the very extensive deposits all over the end of it are manifest. This was the only tooth in this patient's mouth that was apparently involved by any form of this lesion. Some months ago the pulp, although living, was removed, but no benefit to the anterior root resulted, as it was already nothing but a foreign body; and a constant exudation of pus remained which could not be relieved in any manner. The root was amputated at the point shown in B, but the technique of the heteroplasty was somewhat changed. Instead of baking the platinum pin in the root, there were baked in the root two platinum boxes corresponding to the position of the two root-canals. Two platino-iridium pins were

made to fit these boxes; the root and pins are shown in C. The advantage of this method consists in there being no necessity of removing any portion of the sides of the tooth, and thus preserving a much stronger natural crown. The artificial root being now placed in position, and everything being thoroughly dry, the boxes are filled with cement. D shows the pins being forced into the soft cement in the boxes. The crown cavity is now filled with *Fellowship* alloy, sufficient of which is forced between the artificial root and the stump of the crown to make a proper joint. The completed operation is shown in E.

We claim for this operation that we replace a disorganizing organic material by an absolutely aseptic inorganic material, that can not be acted upon by the fluids of the mouth. Five months of observation have evinced the fact that the health of the gums around these roots becomes constantly better. The gum in its efforts to shrink contracts tightly against the porcelain root, holding it firmly in position, and thus preventing the entrance of any extraneous matter. In every case the flow of pus has immediately ceased after the insertion of a porcelain root.—*Cosmos*, Sept. 1900.

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**MEDICINAL, OR MECHANICAL.** By W. D. Cowan, Regina, Canada. Most of us find a certain attractiveness in the *Materia Medica*, and we are very apt to fly to it to discover a means of overcoming the difficulties which confront us. Too often, I think, do we take to drugs to the exclusion of less harmful, if more mechanical, methods of securing a desired result. The *Materia Medica* contains many formulæ of absolute necessity to the dentist, but there are many things in the realm of mechanics which can often be employed just as advantageously, if not more so, but which seemingly are ignored largely because they are too simple to employ when an exhibition of learning can be made, or are too far beneath the dignity of a dentist.

Take first the hemorrhage from tooth extraction. When this occurs the patient usually returns to us and gravely suggests the possibility of danger from an excessive loss of blood. Of course the dentist does not concur in that, but immediately seizes his box of tannin or a solution of that drug, or probably one of the preparations of iron. No matter what his favorite prescription is, he straightway proceeds to use it, meanwhile employing language

about these drugs that is Greek to the patient, and occasionally slow and ineffective as a means of stopping the hemorrhage. One thing, however, that is very likely to have happened is, that the mouth is left in a most disagreeable condition because of the astringent and other properties of the drug employed, or probably pain is occasioned by plugging the cavity with absorbent cotton saturated with the styptic used. It is not an unusual thing for a patient to complain for hours afterwards because of the discomfort caused by the use of these drugs. It may be said that it is pure carelessness in the use of them that permits this, but I have seen such a result after the patient has passed through the hands of very careful men.

It is, indeed, a very exceptional case of hemorrhage that can not be stopped in a mechanical sort of way. In fact, I have not yet had a case that was not stopped in less than three-quarters of an hour, usually in a few minutes. By taking a small amount of cotton between the thumb and finger, placing it over (not in) the bleeding cavity, then exerting a gentle pressure thereon (first, however, having removed all the external coagulated blood which usually gathers in a more or less stringy condition), and maintaining the pressure for from one to two minutes, then allowing the air—for air is almost an essential to coagulation—to reach the cavity for an instant, and then returning the pressure, repeating this until the cavity is filled with a natural coagulated mass, the desired end will be attained without the use of any drug whatever.

Or let us take the case of a sensitive palate, of which we wish to get an impression, but can not, because of the nausea induced. The usual resort is a quarter or half-grain cocain tablet allowed to dissolve gradually in the mouth. Whatever it be, some drug of like effect is usually administered. Sometimes they are successful—not always. Generally the result is to allay the sensitiveness in part only, so that we take the impression with difficulty. The patient goes through a series of gymnastics with his head and body; every muscle is placed in motion; the head instead of being kept firm, is quickly jerked in all directions, so that the hand holding the tray can not follow it. The result is that, even though we can not detect it, the impression has moved and is not accurate, consequently is useless if we wish perfect work. We make the plate, but even if it fits snugly there is still a certain amount of nausea when

the patient comes to wear it, and for some time we are kept in misery by her frequent visits and tales of woe. If, on the other hand, the plate does not fit accurately it still further adds to the nausea, and the difficulty and annoyance is increased. Briefly, the drugging method is not always a success. Better take more time, even if it cause delay to the patient, and adopt measures which will insure an accurate impression and a correspondingly good-fitting plate.

It may seem a clumsy, backwoods method, but I have found the best way to handle this class of patients is to take from one to three weeks to prepare the mouth. I have discarded drugs altogether, and use only an ordinary sheet of pink wax to secure that condition where an accurate impression can be taken and a plate subsequently worn. It is a fact that a person with a sensitive palate who has worn a plate for a short time can then endure an impression without trouble. My method is based on this fact. By taking a sheet of wax, heating it over a spirit-lamp until it readily yields to pressure, and then with the fingers pressing it upon the palate, and around the buccal and labial portions of the arch until it conforms to the mouth just as a base-plate would, you can get one of the most agreeable artifices imaginable. The most sensitive person will permit of it being done, for there is nothing of a nauseous nature about it. It is smooth to the tongue, fits itself nicely into the rugæ, is thin and light, can be worn with care sometimes for a couple of weeks, and acts in a capital manner to accustom the wearer to an unnatural substance in the mouth, and to prepare her for the larger and more nauseous denture. It is seldom that a person who has worn one of these wax plates for even a couple of days can not endure to have a proper impression taken.

I have used these same wax plates to advantage immediately after a major case of extraction. I assume that where a full upper set has been extracted it is the prevailing practice to at once take an impression and order the person to return next day for the plate. The intervening time is not one of comfort to your patient. It is also a common thing for the patient to dread the insertion of the plate on exceedingly sore gums. But it is usual to find that, instead of hurting, the insertion of plate eases the pain. Acting on this, it has been my practice for a long time to make a wax base on the impression I have taken, place it in the mouth, and tell the

patient to wear it until she returns on the morrow. Of course it must be removed while eating. You would be surprised at the amount of comfort they extract from an artifice of this kind, and you would be still further surprised to find how much less inflammation there is where this contrivance is worn. Furthermore, it takes the rough edge off the wearing of a plate, so that when patient comes on following day she is already partially prepared for the inconvenience of denture. If I had to choose between one of these and the drugs usually used, I would refuse the drugs, especially in a case where patient had any driving to do to get home, as is frequently the case.—*Dominion Jour.*, Sept. 1900.

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**EXPANDING THE LOWER ARCH.** By V. H. Jackson, D.D.S., New York. Fig. 1 illustrates an arrangement that was used for broadening the lower arch in the case of Miss G., aged 13

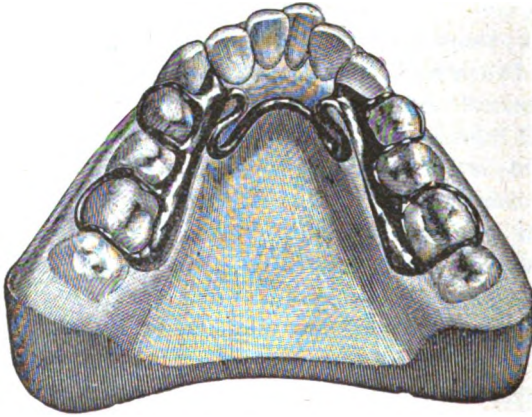


Fig. 1.

years. The appliance was constructed on a plaster model of the teeth, by shaping gold partial clasps No. 34 gauge with contouring pliers to fit the lingual sides of all of the teeth to be moved. Crib springs were then made to encircle the first bicuspid and the first molars, forming crib attachments for anchorage. A spring base wire, No. 14 gauge, was shaped so that about one inch of wire, more or less, followed the lingual curve of gum surface back of lower teeth, considerably below the line of gum margin, but not low enough to interfere with the action of the tongue. Each end of the wire was bent forward upon itself, and again backward, being

drawn into close but gentle curves forming the shape of the letter S as seen in the figure, with the distance between the loops in each of the S-shaped sections about one-half inch. The ends of the spring base-wire were then fitted to the partial clasps with the ends of the crib springs on either side of the arch and soldered with a high grade of soft solder with a soldering iron. Having the base-wire shaped into the form of a letter S on each side of the median line in this manner permits the necessary changes for broadening the arch without warping the apparatus, or interfering with the established relationship of the anchorage portions with the teeth that they are made to clasp.

The action of the apparatus is caused by changing the shape of the loops in the spring base-wire from time to time by bending them outward in the following manner: Hold the end of one of the lower loops firmly with flat-nosed pliers, and bend the wire by pressing outward the crib portion a little with the hand. Then take the corresponding upper looped portion of the wire in the pliers, and hold firmly with the other hand the short central part of the wire that rests back of the front teeth, and press outward with the pliers a little to bend this part of the loop to correspond with the first.

When it is desirable to again change the appliance for causing more pressure, the double loop on the opposite side of the median line should be bent the same as described, usually making these changes about once or twice a week. In some cases, however, the force is changed but once in two or three weeks.

The same or a similar appliance is used for retaining the teeth when the regulation is completed. If the incisors are not in good line after the arch has been expanded, a finger spring can be soldered to the crib portion on one or both sides of the arch to extend forward and cause force for their correction.—*Items, Sept. 1900.*

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**CAST ALUMINUM PLATES.** By Willard Streetman, A.M., M.D., Cleburne, Texas. Read before Kentucky State Dental Association, Louisville, May 29-31, 1900. A few words with regard to the history and properties of aluminum will not be amiss. "Sir Humphrey Davy inferred, from his discovery of sodium and potassium, that alumina was the oxid of a metallic base. This conjectural metal, named aluminum, was consequently discovered by Wohler, but remained for more than twenty years a mere chemical

curiosity, until in 1854 St. Clair Deville succeeded in manufacturing it in large ingots by the action of sodium upon the chlorid of aluminum; but the cost of metallic sodium made this an expensive process. The great majority of all rocks, except limestone, quartz, sandstone and other highly silicious minerals, contain alumina; and it enters into the composition of all clay and slate rocks; hence, next to oxygen, which constitutes one-half of the globe, and silicon, which forms one-fourth, alumina is the most universally diffused of all metallic oxids, and aluminum is the most abundant of all metals. The vast beds of iron ore become insignificant compared with the ore beds of aluminum. As iron is now the most useful as well as the most abundant of all metals, it may not be unreasonable to anticipate a time when the extent and variety of uses to which aluminum will one day be applied shall be proportioned to the vastness of its ore beds.

"Aluminum is the lightest metal known, except glucinum and magnesium (excepting also sodium and potassium); its specific gravity is 2.56 for cast and 2.67 for hammered metal; about the weight of glass or porcelain. Its point of fusion is somewhere near 1,000 degrees F. It is malleable, laminable and ductile in a high degree; has a hardness equal to silver, and excels it in point of tenacity; is eight times better than iron as a conductor of electricity, being nearly equal to silver. Unlike silver, it wholly resists the action of sulphur, also of nitric acid, unless it is boiling. Sulphuric acid does not affect it, nor do the vegetable acids, as citric, oxalic and tartaric. Its record of resistance to change by acids and alkalis is a very fair one, and gives rise to the conjecture of possible impurity of the metal in explanation of the cases reported in which aluminum plates undergo change in the mouth. The conjecture is strengthened by the peculiarity of this change; it occurs in spots, seeming to indicate some local impurity or alloy, not by a general discoloration of the plate, such as we see on 18-carat gold, or silver, and on the stannic alloys. Hence, we know that a perfectly pure aluminum plate will certainly resist the secretions of the mouth; also that it is desirable to avoid placing in the mouth alloys of aluminum with zinc, tin, or cadmium; and that alloys with gold or platina will prove less valuable than the pure metal."

To attain a fair knowledge of the present advancement of the profession in casting aluminum, it will be necessary to first under-



stand the difficulties, and then the means which have been used to overcome them. The first difficulty is the lightness of the metal. When an attempt is made to cast a plate of aluminum in the ordinary way of casting other metals, it is found that the air contained in the molds has prevented the light metal from filling out, and holes are formed in the casting of various size and localities where the air has collected. The second difficulty is want of fluidity of the melted metal. It is observed that the castings are not sharp, and that thin and angular points are not filled out. The next difficulty is the extreme contraction, which tends to destroy the fit of the plate, besides the cracking of the teeth, especially when block teeth are used. There are other difficulties, but these will serve the present purpose.

Dr. Bean, who perished in an avalanche while ascending Mont Blanc, in 1870, patented an appliance in 1867. A full account of his scientific process is given in the older editions of Harris' Principles and Practice of Dentistry, but is omitted by the later editors. His device consisted of a flask with special vents and a long conduit. In his process he sought to overcome the lightness of the metal and want of fluidity by hydrostatic pressure and by filling the mold, previous to pouring, with certain gases lighter, and, as he supposed, less resistant than air. The contraction he overcame by casting upon a model of plaster and marble-dust made from his original model by means of a sectional impression in plaster, thus obtaining three expansions of the plaster. This had regard only to the fit of the plate. To prevent cracking, the teeth were removed before casting, and afterwards attached by flowing an alloy by an additional process.

After Dr. Bean's, several appliances and methods have been introduced, two of which embody the principal ideas worthy of consideration. The first is the application of force to compel the metal to fill the mold. It would seem that this is practical; but it is found to fail, since aluminum so readily absorbs gas and air, which mingle with the metal and render it cancellous. This porosity may not be at first observed, but it becomes apparent when the plate is worn. The second is the idea of exhausting the air from the molds previous to forcing the metal in. A complete apparatus is offered for this purpose, but is useless with pure metal, and succeeds little better with the alloys than with the one which uses force alone.

A satisfactory method of limiting contraction has been a puzzling problem to all who have undertaken to cast aluminum for the mouth. To better understand this, it is well to remember that the warping of a rubber plate produces an exactly opposite result from that of the contraction of an aluminum plate. The former leaves the ridge, and rides upon the palate; the latter leaves the palate, and fits more closely on the ridge; hence, fits the better of the two, if the contraction is not extreme or has been provided for. To overcome this, the idea has been advanced (1) of placing a thin strip of wax over the impression where the misfit will occur, thus changing the model at that point; (2) to add to the aluminum itself some metal, such as tin, which is known to reduce its contraction.

Use of the first forever precludes the possibility of a fit, and the second is of all things that which has done most to impede the progress of aluminum in dental art, namely, the unscientific use of metals to alloy aluminum instead of taking only the pure metal, or the proper use of other metals with it, if such be possible. The result with the alloys that have been used is, that when the metal is added to aluminum it does not unite with it to form a new compound, but mixes with it only in a mechanical way, and when placed in the mouth is thus destroyed by voltaic action. The positive pole is the one which suffers, and aluminum is positive to electricity. The added alloy, aided by the minute air-cells, moisture, and other electrical conditions of the mouth, favors the action of the countless minute batteries thus formed, which soon tell upon the integrity of the piece, thus accounting for its destruction in spots, and also affords a proof, besides much other testimony, that the action is not chemical, as has heretofore been believed. The chemistry alone of the mouth is entirely inadequate to produce the results observed upon alloys of aluminum, and has no effect whatever upon the metal when pure; that is, when free from iron and silicon, either the original or that which has been acquired by repeated meltings in iron or other unsuitable crucibles, as ample experience has demonstrated.

The destruction of swaged plates is similar, and is accounted for in the same way, since the ingots of which the plates are made are defective alloys before being rolled into plate, and the subsequent annealing and swaging by the ordinary methods serve only to increase the conditions favorable to the future failure of the piece.

The great wonder is that the metal's reputation is so fair to-day. Another difficulty with each of the appliances with which it is attempted to force the metal into the mold is that an air-tight mold is required except the vents. The difficulty of preparing these is no trivial matter, and adds greatly to the uncertainty and labor of each effort.

The needs of the profession are, then, (1) a pure metal, or an alloy free from high-priced monopoly, which will not be subject to voltaic or chemical action; (2) a practical means of casting which will produce a sharp copy of the metal without extreme shrinkage.

I will try to give some idea of the means with which I have been successful; but will not undertake to enter into minute details, either as to appliances or processes. Several years ago I conceived the idea that if the atmospheric resistance in the mold could be reduced to a minimum and a long conduit used, the metal would flow satisfactorily. I accordingly devised a "gas vent for molds," which consists of any reticulated diaphragm over the surface of the mold which permits the free escape of air and gas but retains the metal. I was very successful in the application of this idea, and by repeated experiments mastered the details and gained considerable skill, and at the same time made satisfactory progress in other lines of the work. But I soon realized that another trouble presented in casting large full upper plates, which was not constant, but appeared often enough to render uncertain the result. This was a defect about the center of upper plates, which I supposed was due to pouring the metal at an improper heat. Dr. Bean recommended that the metal be poured at a certain red heat, but the appearance of redness is deceptive, and depends not so much on the temperature of the heated body as upon the light in which it is viewed. I have adopted the simple plan of melting the metal considerably beyond the pouring heat, then removing it from the furnace till it begins to granulate, and reheat until granulations disappear. It is then at the exact temperature to flow sharpest with least degree of shrinkage and contraction. Another way is to heat beyond the proper degree and cool to granulation by adding other metal in small pieces till granulation occurs, then continue the heat till granulation disappears. I adopt this same rule in pouring the metal dies upon which I test the plates to insure a fit.

But the proper pouring heat alone was not sufficient to entirely

obviate the difficulty, so I decided the defect was a porosity resulting from and determined by the last cooling point of the plate, and concluded that I would so form the matrix that the entire plate should be outside this porous area. I have made various forms of flasks to facilitate the proper shaping of the matrix to utilize this principle. Some of these include a neck for taking advantage of hydrostatic pressure; others are shorter with a separable neck. To still further remove this last cooling point from the plate portion of the matrix, I heat the neck of the flask, while the plate portion is kept cooler. With this apparatus any one should be able to mold a plate without the least difficulty or apprehension of failure. Surely no device could be simpler or any process more free from complications. It reduces the matter to simplicity itself. First, make the model; second, form the mold and dry it; third, melt the metal and pour it in.

To give some idea of the small difficulties which a new art presents, I will mention one with which I struggled long and earnestly before I settled it satisfactorily. 1. A material for base plate. 2. The thickness of the base plate. 3. How to obtain it. I tried everything suggested and found that old modeling compound, which had been used till it was no good for impressions, was just right for base plate. It is economical, is easily removed, does not melt and saturate the model to spoil its surface and create a gas at the time of casting, is not likely to make a thin place in the plate, etc. I determined the proper thickness of the base plate to cast well by repeated experiments, and to produce it I used a gauge and roller.

When the plate is finished and ready to try in the mouth, the great anxiety is, Will it fit? If it does not, all else is nothing; no matter how perfect the cast may seem to be, if it should fail in this particular point aluminum is a failure. All previous efforts have failed at this point, and the casts which I make are no complete exception to this rule; but the change is not only of such a nature that I completely overcome it, but also in addition I make the defect one of the greatest attractions and commendations of the work. Not all cast plates fail to fit, but should they be found not to go up on the posterior border, and also seem too narrow at this point, it is due (1) to a shrinkage of the model in drying, and (2) contractions of the metal on cooling. I have already condemned the old idea of changing the shape of the model, and of alloying

the metal to prevent contraction. The plan which is without objection is to place the plate upon a zinc die, which is a perfect copy of the original model, and by proper application of force bring it in perfect contact with the die. I produce this die by an easy, accurate method, entirely free from all the uncertainty of molding sand and its disappointments.

By this means I produce a plate which is a perfect cast, and yet is freed from all the defects of casting, and has appropriated all the long famed excellencies of the old-time metal workers' products. It is better than any cast plate, for it has all the advantage of swaging. It is better than any swaged plate, for it has all the advantage of casting. Such a plate can be placed in the mouth with every confidence of perfect adaptation and consequent health and satisfaction. You will observe that I have said nothing about the attachment of teeth.

To attempt to cast upon the teeth, except for partial cases, is one of the errors of the older experimentors. They have done so only because it is customary to mold rubber upon the teeth. I will not here argue this question, but I believe the advantage gained by having the metal plate as a try plate upon which to set up the teeth, producing as it does the highest mechanical and esthetic attainments, more than compensates for the extra labor of vulcanizing on the attachments.

The apparatus consists of a furnace for melting the metal, flasks in which the matrix is formed, a gauge board and roller for making base plate, crucibles, tongs, etc. No special form of furnace is required. Any one will serve the purpose which will take No. 1 plumbago crucible and furnish a heat of 1,500 deg. F. An automatic furnace is, of course, preferable. The flask consists of lateral halves, which are bolted together. The space at the heel of the model is very much larger than is common, and the flask is provided with a neck, funnel-shaped, to admit the metal. The materials used in the construction of models, investments, etc., are easily procured and cheap. The best of aluminum, which is guaranteed free from iron and other injurious impurities, is obtained from the reducer at a very slight cost, the actual expense of a plate being less than that of rubber.

The impression and model is produced in the usual way. From this model, by an easy and accurate process, I reproduce as many

models, either of plaster, metal, or other material, as needed, and the original is preserved to test the fit of the finished plate. The base plate is fitted to the model, and the model invested. The wire gauze is added in such cases as require it, and provision is made for the escape of air through it. The second half of the flask and investment is added when the first has set; the base plate is removed, the investment dried, and the pouring gate formed.

The desirable properties of aluminum as a base for artificial teeth have not been utilized because of the imperfect way of working it. Swaged work has never been popular, and likely never will be. The "aluminum hope" has been placed in a process of casting. No process heretofore presented has been sufficiently free from imperfections to bring out its properties to advantage. By this process of casting not only are the natural properties utilized to the fullest extent, but the process itself has many natural advantages which add very materially to the value of the completed case. It is a well known fact that the edentulous mouth materially changes in almost every instance under rubber plates. This change does not occur when metal plates are worn. The disease known as rubber disease is a familiar form of injury, unknown under metal plates, and the only reason why rubber is tolerated at all is because of the ease with which it is produced and its cheapness. This has so degraded prosthetic dentistry that few skillful ethical operators care to do plate work. The cast aluminum plate therefore fills a long-felt want. It furnishes a plate cheap enough to be within the reach of all, and at the same time requires an amount of time and skill to produce it which justifies a larger fee, and produces a plate far superior in natural properties to anything yet presented. The plates are so rigid that it is nearly impossible to break or bend them.

The material is almost as light as rubber, as clean and healthy and untarnished as gold, and a fit is secured which obtains all the advantages of both the casting and swaging processes, without the defects of either. There is absolutely no question as to the fit of the plate, if impression and model are correct, and the process of articulating the teeth is so simplified that an ordinary operator can secure better results by the use of these plates than is possible for a skillful operator to obtain with rubber or other materials. Besides the perfect fit of the plate and the perfect occlusion of the teeth which is so readily obtained, there seems to be a compatibility with

its surroundings in the mouth which renders it especially comfortable and satisfactory to the wearer. The reason for this is plain. It is a conductor of heat and cold, of sound, and of electricity. The mouth is the center of a very delicately balanced system of nerves and special senses. It is the home of the sense of taste; through the teeth sound is intensified and hearing is possible to the deaf. The tongue has the sense of touch extravagantly developed. Immediately above the mouth, and intimately associated with it, are the special senses of smell and sight. Is it any wonder that a pleasing sense of relief follows the substitution of an aluminum plate, which conducts everything, for a rubber plate, which conducts nothing? By the use of nonconducting material the blood-supply is unbalanced, electric vital currents are interrupted, and the whole facial economy disturbed.

It is not, then, a matter of surprise that diseases are manifested, and that chronic ones, such as catarrh, inflammation of the throat, etc., remain uncured in the presence of a rubber plate. A nose, ear and throat specialist can not promise a cure if an irritating rubber plate is worn. Heretofore we have had little choice, but now, if we wish to conserve the interest of our patient, we can not admit rubber, until we have fully acquainted the wearer with a full statement of the consequences of a non-conductor and explained the advantages of cast aluminum.—*Indiana Journal, Oct. 1900.*

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**DENTAL SUPPURATION TERMINATING FATALLY.** By W. R. Read, L.D.S., Eng. Read before Odontological Society of Great Britain. The patient, a girl, aged 14, was admitted Feb. 21 to the hospital in an almost moribund condition, suffering from "fever and diarrhea."

Two weeks ago patient had an "abscess" in the roof of the mouth which subsided without bursting. Two or three days later she began to complain of pains in the head which spread afterwards to the back and knees. A week ago complained of pains in the abdomen and increasing weakness and diarrhea. Patient has been in bed ever since; has not slept well, has had some retching, and has not taken food well. She had "scarlet fever" four years ago.

*Present Condition.*—Patient lies in bed, occasionally calling out while asleep. Cheeks somewhat flushed; tongue slightly reddened at tip; lips dry, some sordes. Complains of pain at right side of

chest. Eyes: pupils equal, not dilated; react to light; no squint, movements good. No discharge from nose or ears. Temperature  $102.6^{\circ}$ ; pulse, 120, regular fair volume and tension; respiration 60. Chest: there is little impairment at left apex in front; both bases behind somewhat impaired; nothing abnormal heard in front; at both bases behind there are some crepitations. Heart: apex beat in fourth space, one inch inside N.L.; a soft systolic murmur can be heard over the whole cardiac region; not transmitted to the axilla. Abdomen somewhat full, no spots, and no tenderness; spleen not felt. Some swelling in both knees, which are hotter than the surrounding parts; some fullness in the dorsum of each foot, but no pitting.

February 23. Temperature rose to  $105.4^{\circ}$  last night, falling to  $103.2^{\circ}$  after sponging and 5 grains of antipyrin. Patient has been very delirious. Bowels open once yesterday; motion loose and yellow. There is some slight twitching of the fingers, but no retraction of the head. A slight rash has appeared about the wrists. A blood culture gives no growth at present, and Widal's test no clumping.

February 24. Patient slept somewhat better last night. There is some increase of impairment in right axilla, where breath sounds are diminished. Nothing further found. Blood count about 4,000,000 reds, 6,000 whites. Urine shows trace of albumen. Chlorids diminished. Blood culture shows streptococci.

February 27. Patient had 10 cc. of antistreptococcic serum injected yesterday, but there was not the slightest effect produced on the temperature. Yesterday a large bulla appeared on the outer side of the right foot, and there is also a bulla on right big toe. To-day about 6:30 a. m., patient became more unconscious, and retraction of the head came on. Does not take food. Right pupil is slightly larger than left. Patient has slept badly, shooting about bed incessantly. No retraction of abdomen and no rigidity of limbs. Nothing further in heart or lungs. Patient died on afternoon of the 27th.

*Post-mortem Note. External Appearances:* Very pale, few small subcutaneous hemorrhages. Head: two small hemorrhages in frontal region of pia arachnoidea; brain: 46 ounces, natural except that throughout were minute hemorrhagic points. Spinal cord and eye not examined. Ear natural. Larynx and trachea natural



except a small ulcer on left vocal cord. Lungs: right 16 ounces, recent patches of pleurisy corresponding to position of infarcts. Left lung everywhere adherent by old membranous adhesions; on section lungs edematous and several recent infarcts. Heart: small superficial ulcer just below one of the aortic cusps; a few small subpericardial hemorrhages; no vegetations. Peritoneum: some subperitoneal hemorrhages (embolic). Intestines and stomach natural; no ulcers. Liver cloudy. Spleen: 10 ounces, two recent infarcts (red). Kidneys, 6 ounces each, recent infarcts. Bladder: many subcutaneous points of hemorrhages. Right maxilla: On examining the mouth the right first maxillary molar was found to be carious, the three roots alone remaining and they were separated. One-third of an inch above the alveolar margin was found a small oval opening, the edges of which were black. On passing a probe some thick and offensive pus escaped, and the probe went into the antrum. The right maxilla was removed and the antrum found to be full of the same thick pus. A small abscess was found above the opening in the gum, not communicating with it but opening into the antrum.—*Brit. Jour. D. S., Oct. 1900.*

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MINOR ANESTHETICS IN MINOR SURGERY. By W. J. King, M.D., Denver. If general anesthesia is employed in some small operation, do not think that because it is a minor operation it is safe to operate before the reflexes are abolished. Wait until the patient is fully under the anesthetic. There is more danger in incomplete anesthesia than there is in complete anesthesia. However, there is a stage—called “primary anesthesia”—that occurs early in the administration of chloroform or ether. The patient, while not losing consciousness, does not feel pain. This stage of primary anesthesia lasts but about thirty seconds, during which an abscess may be opened, a dislocation reduced, sutures or drainage materials removed or some other simple operation performed. Neither nausea nor vomiting results, and the patient is in his normal condition in ten or fifteen minutes. Primary anesthesia is induced in the following manner, after everything is in readiness for the operation: Patient being in a recumbent posture, with one arm raised vertically, is told to count out loud as the ether or chloroform is administered. In one to three minutes the arm will drop to the side; this is your signal that the patient is ready, so have the anes-

thetic stopped and proceed to operate. The element of fright is removed during primary anesthesia, so you can depend on the patient keeping quiet. Local anesthetics do control the pain, but do not remove the dread of the operation. Under local anesthesia the patient may move just at a time when you especially desire him to keep quiet.

A slight degree of anesthesia may be produced by taking several long, deep inspirations repeated rapidly. This acts by causing an accumulation of blood in the veins, overcharging the vessels of the brain with imperfectly oxygenated blood, thereby stupefying the sensibilities. It is recommended for opening abscesses, reducing paraphymosis, etc. In hernia strangulated by a mere excess of blood in the tumor, it constricts the tissues, expels the blood, and permits reduction of the hernia. One objection to it is the danger of apoplexy from the engorged blood-vessels of the brain.

Local anesthesia may be used for many purposes. In cases where the patient's condition is such that a general anesthetic is contraindicated, local anesthesia has a distinct field in the performance of major operations. But it is more commonly used in the probing of wounds, incising carbuncles, cysts, abscesses or felons, curetting ulcers, small tumors, warts or wens, ligating or excising hemorrhoids, applying or removing drainage tubes or sutures, extracting teeth, reducing dislocations or fractures, operations for necrosis, deflected septum, hypertrophied turbinates, hair-lip. It may be used for many other minor operations. Local anesthetics will alleviate painful piles, neuralgia, periostitis, etc.

Freezing a part will temporarily benumb it. A spray of a very volatile liquid, such as chlorid of ethyl, rapidly evaporates and consequently causes intense cold. Cold acts by causing a temporary constriction of the lumen of the capillaries and a consequent temporary death and insensibility of the part; or rather, by this process, life in the part is for a short time suspended; its safety is due to the extreme rapidity of the deadening process. The general circulation is not affected, and as the agent is applied for but a very brief period of time, the blood returns to the part and complete restoration takes place.

I am inclined to believe that a hypodermic syringe carrying an extremely fine needle might be used to direct an ether spray upon a part.

Powdered ice two parts and common salt one part enclosed in cheese-cloth, or some net of similar thin material, laid directly on the skin for five or six minutes will produce total insensibility. This valuable agent has the advantage of usually being easily secured anywhere.

Alcohol cooled to about  $10^{\circ}$  below freezing point, carbon bisulphid, orthoform, and chlorid of ethyl have been recommended as local anesthetics; likewise menthol and lanolin, equal parts, rubbed on the part, or menthol 10 to 20 per cent in olive oil hypodermically. Ice-water injected by means of a hypodermic will produce results nearly as good as those obtained by using Schleich's infiltration anesthesia. Local anesthesia of the skin may be obtained by drawing a camels-hair pencil wet with carbolic acid, 95 per cent, over the line of incision.

Electricity, the faradic current, was used years ago, but is no longer employed as an anesthetic agent. The positive galvanic current, however, may be used to carry into the deeper tissues an opiate or anesthetic applied on the surface. This is called electrical cataphoresis.

The objections to the use of any freezing agent are that congelation of the tissues is irregular, either too great or insufficient; it is hard to cut frozen flesh; to discover and secure the blood-vessels; to distinguish abnormal from healthy tissues when frozen; and sloughing may occur if the freezing is long continued.—*The Critique*.

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**ALVEOLAR ABSCESS.** By G. A. Kennedy, D.D.S., Kent, Ohio. Early last spring a man of 35 years presented with an alveolar abscess. The roots of an inferior right first molar were the cause of the irritation. It being night, and the roots not perceptible, instructions were given for him to return on the next day in order to have the offending members removed. However, he failed to appear until some weeks later, when he presented with a much larger face than on the previous occasion. Having nothing but artificial light, and the roots still being invisible, the gum was lanced, in hopes that pus might be reached, but all to no purpose. Then a probe was used, and again no pus. The patient was instructed to place a split raisin over the part where the abscess was most likely to point, and the fact emphasized for the patient to return the next day. This he did, when the roots were removed, but not a drop of

pus came with them. Pain had ceased and the patient was given a quantity of listerine, and told that the climax of the trouble was reached, and that the abscess would no doubt point either through the socket where the roots were extracted, or else where the gum had been lanced. But such was not the case. On the following day the man returned with his face still paining him, and, of course, more swelling, involving the submaxillary gland. Upon being informed that pus must be reached, he said he could not endure the probing again and returned home to use the raisin once more. After a few hours the family physician was summoned, who advised a poultice of hot flaxseed to be placed over the swelling. This was diligently pursued for several hours, when the physician desired me to call with him to see the case, the patient by this time not being able to come to the office. The swelling had extended well down on the neck, and it was with difficulty that the man could open his mouth. There was no sign of the pus pointing, and the hot poultices were continued. The swelling, however, increased, extending down to the clavicle and up to the temple, while the tissues presented that boardlike induration so often seen in such cases.

The pharynx and tonsils were badly swollen and deglutition was performed with difficulty. It was now thought best to make an incision upon the face, where pus seemed nearest the surface. Again it was a failure, so on the next day the patient was taken to Cleveland to be operated upon. His temperature by this time was 102°, and it was deemed best to proceed with the operation at once. Chloroform was administered. An incision was made in the face parallel with the body of the inferior maxillary. Then by Hilton's method of opening an abscess, the long-looked-for pus was found, underneath the deep fascia. It was of a thick, creamy consistency, with much odor. After removing as much of the pus as possible, and cleansing with bichlorid, iodoform gauze was packed in the opening and the patient dismissed. The wound was then dressed every other day with peroxid of hydrogen and a two per cent solution of formaldehyd until the patient showed signs of recovery, when the dressing was less frequent. It was fully a month, however, before patient was able to return to work.

Now to what point are we, as dentists, expected to treat such cases? Was not the one just reported in its last stages outside the sphere of dentistry, unless one is making a specialty of oral surgery? At first

there was merely an alveolar abscess, but at the last there was a typical case of Ludwig's angina, the prognosis of which is often grave. Out of 58 cases tabulated in literature there is a mortality of 57 per cent. In some cases pus was reached, while in others none was to be found. At times there will be intense pressure and swelling of the side of face and neck, resulting from the roots of teeth, but without a drop of pus being present. This is how we are to tell whether or not a deep cervical abscess is forming: If pus is accumulating there will usually be a rising temperature, though not always. You will find, by carefully passing the top of your finger over the swollen part, a soft area. This area will present a dusky, reddish appearance; at other times there will be intense swelling from the chin down to the clavicle, showing that boardlike "infiltration" so often seen. The treatment of these cases is as follows: A tonic and cathartic should be administered. In the early stages of the swelling poultices or hot fomentations ought to be applied until the swelling subsides or there is a strong evidence of pus. When one is convinced that pus is forming the case should immediately be turned over to a surgeon. The dentist ought no longer to retain the case when developments have reached this stage. It has gone beyond an alveolar abscess with extended inflammation, and has grown into a deep cervical abscess which is by far more serious. At this juncture no time should be lost in evacuating the pus. Even now there is danger of gangrene and edema of the larynx, which may necessitate the performance of tracheotomy. In severe cases retropharyngeal abscesses have been known to form, and then the pus may point into the pharynx or trachea in such quantity as to cause asphyxia. A number of serious complications may result from these deep-seated abscesses, and it is our duty as dentists to remove every old root that is useless, even though at the time it may be causing no trouble; and in case we have an alveolar abscess, to remove that pus if possible.—*Ohio Journal, Sept. 1900.*

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IS INEBRIETY EVER A DISEASE OR ALWAYS A VICE?  
By P. C. Remondino, M.D., San Diego, Cal. Dr. T. D. Crothers, of Hartford, mentions that some years ago a clergyman having charge of a largely attended mission chapel, one of those broad-minded men who recognize the retroactive relations that exist between the physical and psychic conditions of man, as a result of

his investigation and observation used all possible moral compulsion to induce his charges to have their teeth repaired and afterwards kept in order. He found that after the adoption of the plan he had less drunkenness among his charges. Dr. Rush previously noted the distant affections that were remedied by attention to the teeth, and when we consider the disturbing influence arising from loss of rest, and from the continued nervous irritation to which we are liable to unconsciously suffer from the presence of decayed teeth, we can easily understand how these could be the cause of the initial point from which one may embark on a career ending either in a spell of drunkenness, or in a path that may end in confirmed and habitual dipsomania. The possible extent, reach and degree of reflex disturbance which the irritation of a decayed tooth may cause is something astonishing, and the views held by Rush a century ago have often been confirmed by subsequent observers.

Epilepsy and dipsomania are closely related, as is well known, and what will induce the former of these pathologic conditions can the more readily bring about the latter. The *Medical News* mentions that the literature of the subject contains the history of some fifteen cases in which epilepsy was cured by the extraction of one or more diseased teeth. One case is given where the connection between the irritating and determining cause and the beginning of the epileptic attacks and their disappearance by the removal of the cause, are all so plain that a relation of the case is instructive: "The patient, a man, aged 27, suffered severe pain in the right upper middle incisor, which was filled soon after. Thereupon arose a swelling on the adjacent portion of the hard palate, in which soon after a fistulous opening appeared. Every morning the patient expelled, by pressure with his finger, the purulent contents of the swelling, and was thereafter comparatively free from pain. The tooth, however, was loose and somewhat painful when in use. Ten days after it was filled an epileptic attack occurred, which was repeated after several months. Gradually the attacks became more frequent, and in eighteen months after the first attack they occurred several times a week. The fistula remained during this entire period, and the patient used under medical advice bromids, atropia and other remedies without results. The tooth was then extracted, whereupon the fistula healed, and the epileptic attacks have not returned, although the extraction occurred four years ago."

Some time since I attended a young bachelor who had for some years, but with long intermissions, been subject to attacks of what was looked upon as periodic inebriety. In former attacks the spells had given way to treatment, but in one of these spells I found it absolutely impossible to prevent a relapse of the debauch. I could not account for the new condition of affairs, until one day he begged me to allow him some liquor, as he found it utterly impossible to obtain rest. He then informed me that brandy was the only drug from which he had been able to obtain any relief from the pain and additional nervous irritation caused by a carious tooth which had prevented sleep on the previous night; it had been filled twice, and he had been under a dentist's care just prior to the inauguration of this last drunk. Here I felt was the key to the whole situation. On examining the offending tooth I concluded that just so long as any attempts were made to cure or save the tooth—which so far had all been ineffectual—just so long would the relapses of dipsomania continue. I at once urged immediate extraction, to which the patient consented when I explained to him my reasons, and that I considered the existence of this carious tooth and the irritability it occasioned as being the main factor of his present dipsomaniacal outbreak. On retrospective consideration the patient, a gentleman of unusual intelligence, and well versed in all the literature on alcoholism and dipsomania, fully agreed with me that it was safer to sacrifice the tooth and all prospects for its recovery than to risk the probabilities of an unending debauch. The tooth, a large upper molar, was extracted, when it was found on examination to have been past repair, the roots being extensively ulcerated and in a state of decay. Immediately after removal of this exciting cause, all desire for liquor ceased at once and the patient made a rapid recovery.—*Pacific Med. Jour.*, Oct. 1900.

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CONE FOR ROOT-CANAL FILLING. By Theo. Frhr. von Beust, M.D., D.D.S., Dresden, Germany. My method distinguishes itself from all other fillings that have come to my notice, in that the canal is more easily and completely filled, and in that it is removable, a property which in itself must make it invaluable to every dentist. I have had opportunities of testing this filling in every respect, and will say that it can be easily and completely removed the moment the contents of the pulp-chamber are exposed to the

reach of an excavator or pair of light pliers. It therefore also asserts itself as a practical test filling, and can be used in the anti-septic treatment of roots.

My method is this: I take fine silver wire of from 0.05 to 0.02 millimeter in diameter, and cut from the different thicknesses of wire lengths to correspond to the different sizes of root-canals. These I roughen and surround with a film of gutta-percha, making the point cylindrical or cone-shaped, very like the root-canal points bought at the depots. Then I turn a crook or hook at the end of the point which is to occupy the coronal portion of the pulp cavity. Thus we have an ordinary root-canal point of gutta-percha with a core of wire and a hook at the larger end, or the sheath may be of cotton or wax. This hook facilitates removal of the filling, it being readily seen that the moment one can reach it with the pliers, the filling can be drawn bodily from the canal. Removability has been the *bele noir* of most of our practitioners, and this little idea may prove of value. It has, moreover, other advantages, in that the filling, which can be made as fine as any practical gutta-percha point, has such strength that it will follow the root-canal to the very end without turning at the point, as is the case with those of gutta-percha.

My method of filling is to introduce chloro-percha into the root, and then insert the point with a pumping motion, so as to better force out all air that may be confined. The completed filling, it will thus be seen, has exactly the mechanical and therapeutic value of an ordinary gutta-percha filling with the additional advantages above named.—*Items, Oct. 1900.*

ABBREVIATIONS.—There is a singular tendency in English "medicalees" to resort to abbreviations and initials of various sorts, most of which are comparatively unknown among us, in spite of our alleged tendency to clip and shorten everything. For instance, a general practitioner is always referred to as a "G.P.;" a house physician or house surgeon as an "H.P." or "H.S.;" a case record of tabes dorsalis is headed with the mystic letters "T.D.;" one of general paralysis of the insane, with "G.P.I.," and the same contractions are habitually used in conversation. A unique combination of initials as a diagnosis endorsement is reported to be in vogue at University College Hospital. Whenever a case which is clearly serious enough for admission proves too complicated or difficult to warrant a precise diagnosis upon the hurried examination of the receiving-room, it is promptly initialed "G.O.K." and sent up to its appropriate ward for adequate investigation at leisure. The mystic characters signify simply "God only knows."—*Medical News.*



# The Dental Digest.

PUBLISHED THE TWENTY-EIGHTH DAY OF EVERY MONTH

At 2231 Prairie Avenue, Chicago,

Where All Communications Should be Addressed.

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## Editorial.

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### COLLUSION AND FRAUD PROVEN AGAINST THE CROWN COMPANY BY THE PROTECTIVE ASSOCIATION.

In discussing the litigation last month we stated that Judge Lacombe, upon our motion and petition, had directed the president of the International Tooth Crown Co., Dr. L. T. Sheffield, and his brother-in-law, James Orr Kyle, the so-called defendant in the recent case of the Crown Co. against Kyle, when the Low bridge patent was again sustained, to attend and submit to an examination before a Master in Chancery as to the allegation of the collusive and fraudulent character of that suit.

From the time, July 31, 1899, when Judge Townsend of the United States Circuit Court gave the decision in favor of the Crown Co., which practically overruled or reversed the former one in favor of the Protective Association which had declared the patent invalid, we have asserted that the recent suit was won through collusion and fraud. Our suspicions were founded on good grounds, for we knew that the Crown Co. had bedeviled the testimony and witnesses which the Protective Association put forward in the previous suit, and we also knew that the defendant, Kyle, had not stood all if any of the expense of his defense. Furthermore, there were many other questionable features, which we shall discuss later.

The examination of Sheffield and Kyle was begun on November 8 and ended on the 14th, the editor attending each day's session. The matter is not yet settled, but enough has been brought out to show that this case, in which the Crown Co. obtained a favorable decision, is one of the most fraudulent, dirty and disgraceful proceedings that has ever come before a Federal or a State Court in this country. The examination of Sheffield showed that the entire expense of both sides of the litigation—the Crown Co. and Shef-

field and the alleged defendant, his brother-in-law, James Orr Kyle—was paid for directly and indirectly by the Crown Co. and Sheffield. After trying to evade the question for nearly one whole day Kyle, the defendant—if such he can be called—admitted that he never even went to his alleged lawyer's office, and that the only contribution he made to his defense, directly or indirectly, was "car-fare and drinks for his attorney." There were also many startling and sickening disclosures, but it is not best to make them public at this time. Next month, however, we promise our readers some facts that will be still more astonishing.

### NEWSPAPER ETHICS.

Several months ago the *Chicago Tribune* made adverse comment upon the action of the Nebraska State Board of Health, which refused to issue a license to a physician of Chicago because he advertised, and the board claimed this to be "unprofessional and dishonest." The applicant was an eye-doctor who claimed to cure cataract "by mild medicines alone," and his advertisements in the daily papers were filled with "symptoms of cataract and how to detect them"—on the same order as the patent medicine and "Sexual Weakness" ads—intended to mislead the unsophisticated. The *Tribune* expressed its "surprise at the unjust nature of this proceeding" by the state board. As the quack in question used considerable space in the Chicago newspapers, and is running at the present time a two-column advertisement in the *Sunday Tribune*, that paper's solicitude on his account may not be wholly disinterested.

When the Indiana State Dental Association was in session at Terre Haute last year a local paper printed pictures and sketches of some of the members, whereupon a delegate took exception to the procedure in vigorous language, saying that it was "advertising in violation of the code." In commenting upon the matter an Indiana newspaper says, "Not knowing the delegate we suspect he does not do much business because he is crank enough to refuse to advertise in a newspaper, or else he is sore because his picture did not appear with the others. It is noticeable that the most prosperous dentists are those who patronize printer's ink." Comment on this effusion is unnecessary, but we would brand as entirely false the statement that the most prosperous

dentists are those who advertise. While members of our profession do not as a rule die rich, a goodly number have made moderate fortunes from the practice of dentistry, but they have not done it by "patronizing printer's ink." Instead of advertising dentists being the most prosperous, they are regarded by the dental supply houses, who certainly are in a position to judge of the matter, as somewhat risky for credit, with few exceptions.

Regarding the attitude of the newspapers on this subject, one of the leading medical journals of this country says, "One of the notorious advertising irregular "doctors" of Columbus, Ohio, was arrested on a charge of practicing medicine without a license. The state board was successful in obtaining a conviction, and a fine of two hundred dollars was imposed. The newspapers of Columbus, having been paid large sums by the charlatan for advertising, refused point blank to publish the fact of the trial and conviction. The item was not sent out by the Associated Press. This is a fine commentary indeed upon the morality of the daily papers. Nothing could better demonstrate the power of money to buy the newspapers, or the hold which the quacks have upon the publishers and editors of lay journals."

Many reasonably well-informed people imagine that the ethical code which forbids dentists and physicians to advertise rests upon no substantial basis of common sense. They are disposed to regard it as mere affectation and pedantry. As a matter of fact there are very material reasons for the strict enforcement of the code, and none of them more important than to protect the public against the danger of its own gullibility. Most advertising is notoriously untruthful. The proprietors of the great retail emporiums vie with the patent medicine venders in making the most extravagant claims. There is an axiom of the law with regard to ordinary merchandising, "Let the purchaser beware," that should never be applied to the learned professions. The layman is presumed to be able to judge of the quality of meats, groceries, clothes and such ordinary articles as he needs, but he has no means of determining in advance the ability of a dentist to treat diseased conditions of the mouth. The professional man who advertises appeals to the ignorance of the people. In the very nature of things he must make preposterous claims. It is impossible to tell a number of miscellaneous readers of an advertise-

ment what they need in dentistry or medicine. No two cases are alike, yet an advertiser unblushingly lumps humanity into a single class and offers to cure patients ad libitum as fast as they come, without regard to age, sex, color or previous condition of servitude.

With its dental and medical laws the state endeavors to protect the public from charlantry by providing that no one shall practice either art except he shows ability therefor, and this should insure the people against quackery and imposition. These restrictive laws are not intended to benefit the profession or to prevent competition therein, but are enforced for the common good. Unfortunately there is, however, no law against advertising in this country, so quackery is rampant and the public are swindled. P. T. Barnum, the great showman, was right when he said "The American people like to be humbugged." We regard Mexico as two or three centuries behind the times, but this government might well pattern after her laws on advertising. It is reported that in our sister republic an advertiser must, under pain of fine and imprisonment, fulfill absolutely every claim which he makes, and it is at once apparent how great a safeguard this provision is against quackery. The man who writes false and misleading advertisements, and who makes therein claims that are impossible of fulfillment, should properly be indicted for "obtaining money under false pretenses." It will, however, probably be some time before the state or national government will adopt such radical measures for the suppression of quackery and the benefit of the inhabitants of "these great and glorious," so the evil must be remedied by the reputable members of the dental and medical professions.

One newspaper in the west recently had the courage to announce that thereafter it would print no more disreputable, questionable or quack advertisements, and we predict for that paper the support of the decent people in the city in which it is published. If the members of the dental and medical professions would educate the intelligent element of the community against this quackery which finds vent in the daily press, the newspapers would soon feel the weight of disapproval against accepting such advertisements; one paper in each section would make the break and throw out and refuse all quack advertisements, and its rivals

would find it to their advantage to follow suit. If the newspapers will not serve the best interests of their readers from choice they must be forced to do so through necessity.

## Notices.

### NEW HAMPSHIRE STATE DENTAL SOCIETY.

At the annual meeting of this organization, held at Manchester Nov. 13-15, 1900, the following officers were elected for the ensuing year: Pres., W. W. Cushman; V. P., W. I. Moulton; Sec., F. F. Fisher; Treas., G. A. Young; Librarian, E. T. Bibber; Ex. Com., Joseph Boylston. O. H. Johnson, E. C. Blaisdell.

### LATEST DENTAL PATENTS.

- 660,172. Dental cuspidor, H. J. Tarr, Chicago.
- 660,411. Dental plugger, R. Blum, Corpus Christi, Texas.
- 660,913. Dental remedies, H. Bauermeister, Brunswick, Germany.
- 661,282. Dental polishing and finishing tool, C. C. Bachman, Waterloo, N. Y.
- 662,070. Dental handpiece, H. F. Jones, Camden, N. J.
- 662,231. Dental vulcanizer, P. Funck, Rochester, N. Y., assignor to Johnson & Lund, Philadelphia.

### TRADE MARK.

- 35,329. Dental supplies, E. Ennis.

### DENTAL PROTECTIVE ASSOCIATION MEETING.

The thirteenth annual meeting of the Dental Protective Association of the United States will be held at Chicago Kindergarten College Hall, 10 Van Buren street, Chicago, Monday, December 17, 1900, at 8 p. m. At this time three directors will be elected, the books and accounts examined and reported upon by a committee to be appointed by the members present, and such other miscellaneous business transacted as may come before the meeting. As full a representation as possible is desired, but if any of those unable to attend have suggestions to make, we shall be glad to receive same and to bring them before the meeting.

J. N. CROUSE, President.

C. N. JOHNSON, Secretary.

### INSTITUTE OF DENTAL PEDAGOGICS.

The eighth annual meeting of this organization will be held at the Maxwell House, Nashville, Tenn., commencing at 10 a. m., Dec. 27, 1900, and continuing three days. The local committee of arrangements is Henry W. Morgan and J. P. Gray.

Program: Thursday, Dec. 27, 10 a. m. President's address. Discussion, W. F. Litch, J. Taft, H. B. Tileston, F. D. Weisse, W. C. Barrett. 12, noon. The Use of Flexible Rubber in Orthodontia and Other Technic Teaching, J. Q. Byram. Discussion, S. H. Guilford, C. S. Case, W. H. Fundenberg. W. W. Evans, W. E. Grant. 2 p. m., Teaching of Materia Medica and

Therapeutics, How and How Much? A. H. Peck. Discussion, James Truman, John I. Hart, S. W. Foster, G. E. Hunt, J. D. Patterson. 5 p. m. Exhibit open. 8:15 p. m., The Use of the Lantern in Teaching Dental Histology in Its Relation to Operative Dentistry, F. B. Noyes. Discussion, I. N. Broomell, A. H. Thompson, W. C. Foster, H. T. Smith, Louis Leroy.

Friday, Dec. 28, 9 a. m., exhibit open. 10 a. m., Presentation of the Technic of Crown and Bridge work, Metal and Porcelain, Thos. E. Weeks. Discussion, Otto Arnold, F. R. Sandusky, R. H. Nones, N. S. Hoff, H. R. Jewett. 1 p. m., Exhibit open. 2 p. m., Class-room Method of Teaching Oral Surgery, G. V. I. Brown. Discussion, M. H. Cryer, T. L. Gilmer, E. S. Talbot, J. Y. Crawford, E. M. Kettig. 4 p. m., A New Feature in Teaching Dental Anatomy and Operative Technics, A. E. Webster. Discussion, E. C. Kirk, G. V. Black, Wm. A. Montell, G. W. Dittmar, W. H. Whittlar.

Saturday, Dec. 29, 9 a. m. Exhibit open. 10 a. m. Class-room Method of Teaching Prosthetic Technic, Grant Molyneaux. Discussion, J. H. Kennerly, J. P. Gray, J. B. Littig, T. M. Allen, A. O. Hunt. 11:30 a. m. Reports of committees on syllabi of operative and prosthetic technics. 12 noon. Election of officers.

The exhibit should be shipped to the Maxwell House, care J. A. Dale or Geo. H. Wilson, Master of Exhibits, before the holiday rush. All teachers are cordially urged to attend these meetings. Every school should be represented.

HENRY W. MORGAN,	} Executive Board.
DAVID M. CATTELL,	
WALTER E. WILMOTT,	

#### CHICAGO ODONTOGRAPHIC SOCIETY.

The regular monthly meeting of this society was held Monday evening, Nov. 19, 1900, at its present temporary quarters in the Masonic Temple. President T. L. Gilmer was in the chair, and the attendance numbered considerably over one hundred, which is not an unusual thing, however, for Chicago's healthy young progeny of the dental profession.

The first paper of the evening was "Some Troubles of the Soft Tissues of the Mouth," by that prolific writer, A. H. Peck, and was a very lucid presentation of the subject so far as it went. The author attempted to touch only upon some of the most common and more frequently met with diseases that might be ascribed to the subject, and to consider them from a diagnostic, pathologic and therapeutic standpoint.

Special reference was made to the similarity of the differentiation between some of the diagnostic symptoms in certain oral manifestations, and particular stress was laid, both by the essayist and in the discussion following, upon the importance of the dentist securing as accurate a history of the case as possible, with as much right and as little incidental embarrassment as would the physician, before making any definite diagnosis or proceeding with the treatment; as well as the importance of constitutional treatment so frequently demanded.

The discussion was opened by G. W. Cook and continued by A. W. Harlan,

G. J. Dennis, C. T. Gramm, J. E. Nyman and others, and was productive of much interesting matter. Dr. Cook, talking from a bacteriological standpoint, added much in the way of substance to the subject; and Drs. Harlan and Gramm, treating it from a practical and mainly therapeutic point of view, seemingly covered all the ground left open by the essayist. Dr. Dennis gave an interesting description and history of several cases incident to office practice, when the author briefly closed the subject.

Dr. J. H. Prothero then read a paper on "Constructing a Matrix for Seamless Crowns." The wide scope of distinction between the nature, merit and value of this paper, as compared with the preceding one, caused the essayist to modestly apologize for descending from the sublime to the ridiculous; nevertheless, the paper was brief, practical, and presented a few good ideas, and we are pleased to note was prefaced by denying overenthusiasm upon the subject.

Your writer opened the discussion and was followed by W. H. Taggart, J. E. Nyman, H. C. Waack and others. The consensus of opinion indicated by the discussion, which was confined more to the practicability, merit and advantage of seamless crowns than to the operative procedure described in the essay, was so overwhelmingly in opposition to such a crown, that the author in closing acknowledged he felt almost like championing the same through a spirit of charity. There is a certain intuitive sentiment in the nature of most of us which, regardless of our own convictions, causes us invariably to lean toward the under dog, and the essayist was no exception to the rule.

From the scarcity of advocates of seamless crowns present, of acknowledged advantages in their favor, and in view of the objections mentioned by those who gave voice to their opinions, almost without challenge, we believe the idea is one of those fads scheduled to soon be placed upon the shelf; and that its strongest supporters and advocates will be the dental laboratory men, those who make seamless crowns but never see them in the mouth, or in relation with anything but a plaster model—the very ones who are least capable of judging.

Dr. Waack advocated such a crown for bicuspid where you cut the front out afterward and solder in a porcelain facing (Hollingsworth's method), because we suppose there would be no joint to come unsoldered. This, however, is no advantage when we have solders ranging from 22 to 18k. for this work, which precludes such a possibility, and Dr. Waack would be more in line with progressive prosthesis if he took an easier, quicker and far more artistic method and made porcelain crowns for such teeth.

The essayist then advocated such a crown for abutments for porcelain bridges, but we differ with him, as they are contraindicated here above every place else, for surely it would not be advisable to place the thinnest weakest crown right where you would require the greatest strength, especially in these days of platinum solder.

Mr. E. Lenthall Oldfield, of Melbourne, Australia, dean of the Dental College and Oral Hospital of Victoria, was elected to active membership, after which the meeting adjourned.

H. J. GOSLEE.

## News Summary.

**TEETH ARE LIKE VERBS**, regular, irregular and defective.

**SAVE UP MONEY** for a rainy day, and it is sure to rain.—*Roche*.

**A PAINLESS DENTIST** is one who extracts teeth without pain—to himself.

**WM. S. BITTNER**, 67 years of age, a dentist at Altoona, Pa., died Nov. 6, 1900.

**H. E. HOBBY**, 22 years old, a dentist at Mt. Vernon, N. Y., died Oct. 20, 1900.

**C. M. SHREVE**, 48 years of age, a dentist at Denver, Col., died Nov. 14, 1900.

**J. G. WELTMER**, 55 years old, a dentist at Lititz, Pa., died Nov. 10, 1900.

**J. W. HARRISON**, a dentist at Terre Haute, Ind., 56 years old, committed suicide Oct. 22, 1900. He was a slave to alcohol, morphin and cocain.

**CHAS. H. CLARK**, 60 years of age, a dentist at Plainfield, N. J., died Nov. 4, 1900.

**T. S. BELDEN**, a dentist at Buffalo, N. Y., died Nov. 16, 1900, after several weeks' illness.

**WM. A. LEE**, a well-known dentist at Allegheny, Pa., died Nov. 10, 1900, at the age of 43.

**W. KENNEY**, formerly a dentist at Joliet, Ill., died in Canada, Oct. 21, 1900, at the age of 29.

**ARTHUR PEARSON**, 37 years old, a dentist at Derby, Conn., died Nov. 15, 1900, of meningitis.

**E. SHELFP**, 68 years of age, and for eighteen years in the practice of dentistry at St. Louis, died Oct. 22, 1900.

**MARINE NOTE**.—Can the act of a thirsty dentist imbibing a stein of beer be referred to as a "schooner going into a dry dock?"

**A DRAW**.—Perhaps one reason why dentists never have a match in their art is that the result would in all probability be a draw.

**VULCANIZERS CONTINUE TO EXPLODE**.—This time it was in the office of Dr. E. F. Rowell at Kenosha, Wis. The doctor had a narrow escape from serious injury.

**TOLEDO DENTAL SOCIETY** held its annual meeting Oct. 19, 1900, and elected the following officers: Pres., L. T. Canfield; V. P., W. S. Groves; Sec. and Treas., A. J. Wolfert.

**VIRTUE ITS OWN REWARD**.—"The dentist, Dr. —, is being kept very busy. He is doing work for people from adjoining counties. This speaks well for his work."—*Nevada (La.) Journal*.

**L. GLEASON**, an insane dentist at Ithaca, N. Y., tried to kill his wife Nov. 12, by blowing up her house with dynamite. She was unhurt, but he was scattered over the adjacent townships.

**THE office of H. J. Reilly** at Missoula, Mont., was destroyed by fire Oct. 22, 1900, during the doctor's absence, and it is thought that as he was using gas-oil to vulcanize an explosion occurred.



**A. A. BIGELOW**, a traveling dentist who generally resided at Cleveland, O., died at Newark, Nov. 14, 1900, from paralysis.

**LUCKY MAN.**—"Mrs. C. R. Adams, May Neely and May Adams were patronizing the dentist in Dana the last of the week."—*Paris (Ill.) Herald*.

**J. W. TRAINOR**, a dentist at Bedford, Ind., was assaulted and perhaps dangerously injured Oct. 29, 1900, by a citizen of the town, who charged the dentist with alienating his wife's affections.

**TUSCARAWAS VALLEY DENTAL ASSOCIATION** at its semi-annual meeting Oct. 31, 1900, elected the following officers: Pres., Hamlin Barnes; V. P., H. D. Mitchell; Sec. and Treas., R. O. Shoop.

**SURGICAL INSTRUMENTS** if carefully cleaned after using and then boiled in a saturated solution of carbonate of sodium and allowed to dry with the soda solution upon them, will never rust.—*Pacific Medical Journal*.

**HASTE MAKES WASTE.**—A dentist at Kankakee, Ill., advertises in the town paper that he recently extracted twenty-three teeth from a patient in one minute under gas. He evidently believes in "extraction for prevention."

**NORTHERN ILLINOIS DENTAL SOCIETY** elected the following officers at its thirteenth annual meeting at Aurora Oct. 24-25, 1900. Pres., W. C. Bunker; V. P., C. R. Currier; Sec., J. J. Reed; Treas., M. R. Harned. Next place of meeting, Joliet.

**"LIQUID STONE."**—A patent has recently been granted on this article to Dr. N. B. Winter, a dentist at Lexington, Ky. It makes stone look as if it has just been quarried, and when applied with a brush it dries immediately and makes a building look like new.

**THE GENTLER SEX.**—A woman dentist at Rushville, Ill., on Nov. 13, armed with a horsewhip and a revolver, attempted first to whip and then to kill a merchant and his clerk in that city. She claimed that the two men had circulated derogatory reports about her.

**MOUNTBANK IN TROUBLE.**—A man at Fresno, Cal., who calls himself a dentist, hired an express wagon recently and began to extract teeth free of charge throughout the city to advertise his method, but the police refused to let him continue without taking out a license.

**DANGEROUS TO SWALLOW.**—"Oh, doctor! is it very dangerous to swallow hard rubber?" "Very dangerous indeed." "And porcelain? Oh, doctor! is it very poisonous?" "Rather. But see here, madam, have you attempted suicide?" "No, but I have swallowed my false teeth."

**DEATH UNDER EXTRACTION.**—A woman at Mapleton, Iowa, died Oct. 22, 1900, while having some teeth extracted. The dentist tried to dissuade her from taking chloroform, and when he finally refused to administer it she called in a physician to do so. Score one for the dentist.

**ILLINOIS STATE BOARD SUED.**—Herbert Phillips of Chicago has brought suit against the members of the Illinois State Board of Dental Examiners for \$25,000 damages, alleging that he was falsely imprisoned by the board during September for practicing dentistry without a license.

**PAY IN ADVANCE.**—Patient: "Isn't it dangerous to administer anesthetics? Must be terrible to have a person die in your chair." Dentist: "Yes. It was for that reason that we adopted the rule that where an anesthetic is administered the patient must pay in advance."—*Boston Transcript*.

**GEORGIA DENTIST WHO CAN NOT VOTE.**—According to the *Macon News*, Dr. D. S. Wright, a well-known dentist and highly respected citizen of that town, can not vote. The doctor was a soldier in the confederate army, and after the war was over he refused to take the oath of allegiance, so of course is not legally a citizen.

**ROCKFORD (ILL.) ODONTOLOGICAL SOCIETY** held its annual meeting Nov. 6, 1900, and elected the following officers: Pres., F. C. Gill; V. P., Bryant Kerr; Sec. and Treas., D. S. Brogunier. Member Board of Censors, M. A. Banks. The event was also in the nature of a farewell to Dr. C. A. Kitchen, who left for Los Angeles, Cal.

**AMERICAN ACADEMY OF DENTAL SCIENCE** held its annual banquet and election Nov. 14, 1900, and elected the following officers: Pres., V. C. Pond; V. P., F. Bradley; Rec. Sec., Frank Perrin; Cor. Sec., G. B. Payne; Treas., W. Y. Allen; Librarian, H. G. Hichborn; Editor, C. H. Taft; Ex. Com., F. G. Eddy, Thomas Fillebrown, S. G. Stevens.

**TO REMOVE GUM TISSUE FROM A TOOTH CAVITY.**—A difficulty which is frequently met with is the intrusion of the gum into the cervical edge of cavity, so as to render difficult and very painful adjustment of the rubber. The excess of gum may be burnt away with a minimum of pain by means of sodium of ethylate.—Robertson in *Dental Record*.

**OSTEOPATHY.**—A. T. Still, M.D., founder of the osteopathic cult, in the *Journal of Osteopathy* for July, delivers himself of the following lucid sentence: "All bones and softer parts must obtain all matter entering their form and kind." This reminds one of the cheerful and enlightening conundrum: "Why does a mouse spin?"—*Cleveland Jour. of Med.*

**"MANUAL OF PERSONAL HYGIENE."**—Edited by Walter L. Pyle, A.M., M.D. There are seven writers concerned in this work, each contributing a chapter on his specialty. The book is apparently intended for the guidance of the laity, but should prove both interesting and instructive to the profession. Philadelphia: W. B. Saunders & Co., 1900. Price \$1.50, net.

**PATENT ON BABY'S TOOTH.**—One day the wife of Edison the inventor, came to him and announced with great glee that the baby had a new tooth. "Very well, my dear," replied the husband, never stopping a minute from his work, "I have not time to bother with your affairs now. Just run along and get a patent on it and have it charged to my account."—*New York Sun*.

**FORCED DILATION OF THORAX TO ARREST EPISTAXIS.**—The subject sits erect on a chair, places both arms on his head and breathes quietly and as deeply as possible, with open mouth. The veins of the head and neck are emptied of blood by this procedure and the hemorrhage stops. Fedorowitch has cured fourteen severe cases by this simple means, all children but one.—*Jour. A. M. A.*

**SCHOOL CHILDREN'S TEETH.**—The Maryland State Dental Association has offered to examine the teeth of the pupils in the public schools of that state, and to note on diagram any cavities or imperfections which may be present in the individual mouths. This paper would be sent to the parents, and would in all probability result in attention being given where needed. The school board has not as yet acted on the question.

**VALUE OF AN AMERICAN DEGREE.**—The University of Delaware, which we exposed some months ago in our columns, and which exists only in the persons of a dentist, a saloon-keeper and the wife of a carpenter, is now offering degrees of all sort for whatever price can be obtained. In consequence of this and other abuses the medical board in Australia refuses to register any American diplomas without examination.

**TO MARK EXACTLY ON A DENTURE THE SPOT CORRESPONDING TO A WOUND OF THE MUCOUS MEMBRANE.**—Cut a disk of suitable size from paper gummed on one side, and place it carefully over the ulcerated spot, gummed side up. Moisten the denture and place in position with light pressure. Remove carefully and the disk will be found adherent upon the point wounding the membrane, which can then be relieved.—*Revue de Stom.*

**QUININ SULPHATE FOR SENSITIVE DENTIN.**—A very nervous lady had tried five different dentists in Paris to have her teeth filled, but the dentin was so highly sensitive that she could not submit to the operation. Schwarz gave her three powders of quinin, eight grains each, to be taken at intervals of forty-eight hours. The sensitiveness of the dentin was entirely lost, and he filled three cavities at the first sitting.—*L'Odontologie.*

**OSTEOPLASTY OF THE INFERIOR MAXILLA.**—Dr. W. Sykoff says that osteoplastic resection of the lower jaw, when it can be performed, is to be preferred to prosthetic apparatus. The three essentials to a successful operation are retention of the perineum and of a bony bridge for support of the subjacent tissues; retention of the marrow; and an aseptic condition of the transplanted piece of bone. He reports a successful case.—*N. Y. Med. Jour.*

**HEMORRHAGE AFTER TOOTH EXTRACTION; PICRIC ACID.**—Place a drop of creosote, or carbolic acid, and a drop of nitric acid side by side on the top of an inverted glass. Now take a pledget of cotton and dip it first in one and then in the other, and after waiting a moment pack securely in the alveolus. The union of the creosote, nitric acid and cotton forms a violently explosive compound, and must be handled with care.—Dr. G. T. Baker, *International.*

**DEALERS VS. MECHANICAL DENTISTS.**—We have on one or two occasions in the past criticized Trust houses for advertising to do mechanical dentistry, and we are now pained to note that not only is the number of dealers who thus war against the mechanical dentists on the increase, but even non-combination houses are entering the field. Supply houses which endeavor to usurp the work of the mechanical dentist and to crowd him out of the field should be rebuked in no uncertain way, and we should think the dental profession would not hesitate to administer it.

**PLEASANT EDUCATIONAL PASTIME.**—The medical and dental students at the Omaha Medical College, Omaha, Neb., had a fight over the possession of a lecture-room Nov. 15, and in the scrimmage several students were more or less severely injured, and one perhaps fatally. We are heartily in favor of dental students entering upon the work of their chosen profession with the utmost zeal, but this looks as if they were too earnest in the matter, and we would urge the authorities to curb their ambition.

**INTELLIGENT JURY.**—Dr. H. Baldwin, a dentist of Mt. Carroll, Ill., brought suit Oct. 17 at Hammond, Ind., against a young woman who owed him \$41 for services performed in Illinois. At the time the work was done she was eighteen years old, the legal age for a woman in Illinois. But the Indiana law fixes maturity at twenty-one years, and as the defendant had not reached that age a verdict was granted in her favor. Why is it that professional men never receive fair treatment in a justice court?

**"AMERICAN TEXT-BOOK OF PROSTHETIC DENTISTRY"** by eminent American authorities. Edited by Charles J. Essig, M.D., D.D.S. This work well answers the need for a comprehensive and authoritative exposition of the principles and practice of the art in its most modern development. The volume marks a distinct advance in the literature of dentistry. Second edition, revised and enlarged. In one volume of 817 pages, with 1069 engravings. Lea Brothers & Co., Philadelphia and New York, 1900. Cloth, \$6; Leather, \$7.

**MOTHERS AND ALCOHOL.**—Maurice Nicloux (*L'Obstetrique*) reports an extensive series of experiments with the following conclusions: Ingested alcohol passes from the mother to the fetus and into her milk, the proportion in the blood of the fetus and in the milk being about the same as in the blood of the mother. Therefore the nervous conditions, drunkenness, anesthesia, etc., of the drinking mother must indicate a marked toxicity in the infant, and the whole baneful influence of alcohol upon the tissues is exerted during their process of formation, with especial injury to the nervous supply.

**CHINESE VOCABULARY.**—Many of the characters in the Chinese language are suggestive of the relationship between husband and wife, and leave no doubt as to the subordinate position which the woman occupies in Chinese domestic life. The part which the man plays in securing his bride is vigorously illustrated in the words to seize, the character for woman crouching under the Chinese symbol for claws, while the character for wife, indicated by a woman placed beside a broom, is evidence of the Chinaman's opinion with regard to the proper position of his helpmate in the household.—*October Ladies' Home Journal*.

**TREATMENT OF ANTRAL EMPYEMA.**—Max Halle (*Berliner klin. Woch.*) advocates the procedure followed in Krause's clinic in Berlin. The antrum is opened by a trocar in the interior nasal meatus and its contents are evacuated by syringing through the opening thus made, out through the natural opening in the middle meatus. By means of the syringe an air douche is driven through the antrum and it is again syringed. The air douching is again resumed until the interior of the cavity has been made fairly dry. Iodoform is then freely insufflated into it. No packing whatever is used.

Halle claims that this plan of treatment (the dry method) is not difficult, can be done without narcosis, avoids all communication with the mouth, relieves patient from the disagreeable taste of iodoform packing, as is so often necessary in operations through the cuspid fossa, and produces healing in less time than by other methods.—*Med Rec*

**DEATH FROM HEART FAILURE.**—Dr. J. E. Dunn of Chicago reports a narrow escape which he had recently. A patient called upon him for extraction of some teeth prior to having a bridge placed, but when the day came for extraction the patient did not feel well enough, so the operation was postponed, and the same occurrence took place on six or seven following occasions. Finally the patient braced himself with whisky and had one tooth drawn, insisting on leaving the others until a future date. Some days later he presented for the ordeal, but died in the building before an anesthetic was administered or the work was begun. If he had died in the chair, Dr. Dunn would of course have been put in an embarrassing position. Dr. F. T. Van-Woert had a similar experience some years ago. A man called for extraction of a tooth, but the doctor did not wish to administer the anesthetic during the absence of his assistant, so the man left the office, but fell dead on the sidewalk.—*Items*.

**OYSTERS.**—Oysters have for centuries been much esteemed by medical men as being very nutritious and easy of digestion, but both these properties are much diminished when not taken in their raw state. It may not be generally known that the fluid which surrounds the oyster bears a closer analogy to the gastric secretion than anything else in nature. In addition to the solvent properties of this fluid it is not without its nutrition. We have of late devoted considerable attention both to the substance and secretion therefrom, and find that in a given weight of the latter and the same of the oyster, the fluid yields only forty per cent less of animal gluten or jelly than the fish. Consequently all persons who are accustomed to eat oysters should be ever mindful that as little as possible of the juice should be lost. When oysters are eaten stewed or scalloped, the two properties, as before stated, are much diminished; consequently they ought never to be taken by invalids except in their raw state.—*Sanitary Record*.

**TOXIC EFFECTS OF BORIC ACID** are described by Dr. J. J. Evans in the *British Medical Journal*. In treating a case of cystitis increasing doses of 10 to 20 grains of boric acid three times a day were prescribed. After about three weeks of this treatment an erythematous rash spreads over the patient's neck, face and head, followed by some subcutaneous edema, and a fine scaly dermatitis. The salivary glands became enlarged, and eventually the hair on the face and head fell out, so that in a fortnight the man was perfectly bald. The drug was discontinued, but six weeks elapsed before there was any reappearance of hair on the face or head. In numerous other cases of cystitis and urethritis extending over a period of five years, Dr. Evans has observed similar effects following the administration of boric acid—that is, an erythema followed by a fine scaly exfoliation. Immediate discontinuance of the drug prevented development of the more severe symptoms, but

in one case, in which it was inadvertently continued, the hair fell out to a slight extent, and there was marked exfoliation of the skin, especially of the hands, with onychia and splitting of the nails. Dr. Evans concludes that the symptoms were entirely due to the action of boric acid on the skin and appendages.

**HEADACHE FROM EYE-STRAIN.**—Casey A. Wood says that the site of the ocular headache in the order of frequency is (1) the supraorbital; (2) the deep orbital; (3) the fronto-occipital; (4) the temporal. The character of the pain is more likely to be dull and heavy than very acute. The exciting causes are tasks which require the use of the accommodation and convergence, reading, writing, drawing, painting, typewriting, sewing, music, card-playing, billiards, shopping, riding in trains and street-cars, etc. Long-sighted people suffer more from headache than the short-sighted. Insomnia, dyspepsia, pelvic disease predispose to ocular headache. The author is opposed to internal drug treatment, but advises very hot or very cold fomentations. In conjunction the following mixture may be rubbed over the forehead and temples, or a towel, wet with one part in ten with ice-water, may be laid over the closed eyes and forehead while the patient is lying down: Spirits of lavender, alcohol, aa fl ʒiii.; spirits of camphor, fl ʒi.—*Med News*.

**CAUSE OF CANCER.**—Roswell Park (*Buffalo Med. Jour.*) gives it as his personal opinion that cancer is of parasitic origin. Not one parasite, but probably many, are responsible for the various malignant growths. In their labors at the State Laboratory in Buffalo they have received increasing confirmation of this belief. They have found in all carcinomata certain bodies resembling fat, but which are not soluble in ether or alcohol. Park says that in their recent work, in which cancer-tumors are introduced into living animals, they were able to find these bodies in large numbers in the enlarged lymph-nodes of the animals. They have been able in one case to produce a true adenocarcinoma in an animal by inoculation with fluid from the peritoneal cavity of a man suffering from colloid cancer of the omentum. In this fluid was found an organism which apparently belongs to the yeast group, but which they were unable to cultivate. The laboratory is in possession of pathogenic yeasts which various investigators have isolated from cancer, and experiments are being performed with them. These organisms are exceedingly polymorphic and difficult to deal with.

**HIBERNATION AMONG RUSSIANS.**—A practice closely akin to hibernation is said to be general among Russian peasants in the Pakov government, where food is scanty to a degree almost equivalent to chronic famine. Not having provisions enough to carry them through the whole year, they adopt the economical expedient of spending one-half of it in sleep. This custom has existed among them from time immemorial. At the first fall of snow the whole family gathers round the stove, lies down, ceases to wrestle with the problems of human existence and quietly goes to sleep. Once a day every one wakes up to eat a piece of hard bread, of which an amount sufficient to last six months has providently been baked in the previous autumn. When the bread has been washed down with a draught of water every one goes to

sleep again. The members of the family take it in turn to watch and keep the fire alight. After six months of this reposeful existence the family wakes up, shakes itself, goes out to see if the grass is growing, and by and by sets to work at summer tasks. The country remains comparatively lively till the following winter, when again all signs of life disappear and all is silent, except we presume for the snores of the sleepers. This winter sleep is called "lotska."—*Med. Age.*

**KING OF BELGIUM'S MISHAP.**—The Paris papers can not help laughing at a mishap that befell the king of Belgium while he was sightseeing in the city of light a few weeks ago. In the middle of the night the electric bell communicating between his majesty's bedroom and that of his valet was heard to ring violently and uninterruptedly. The valet, in night attire and scared out of his wits, ran to his master, whom he found sitting on his bed, green with terror: "Something dreadful has happened," said the king. "I have just awakened, and—look!" His majesty opened his mouth, and there was a wide space in it. "I have swallowed those two d—d teeth," he groaned, and am in pain. What is to be done?" In a second the valet awoke the king's secretary, who rushed off for the nearest doctor. He returned, bringing a powerful emetic, which royalty swallowed docilely. Then his august head fell back on the pillow, which the faithful servant began to smooth in a motherly fashion. Suddenly a scream of joy rent the air. There, among the luxurious lace of the pillows, glittered the teeth. But the honest emetic did its duty all the same, and the next morning his majesty did not keep an engagement with the exposition functionaries, as he had planned to do. Shade of Dr. Evans! This could not have happened in your time.

**NO EXCUSE FOR NOT HAVING LICENSE.**—The defense to the Mississippi case of Bohn vs. Lowry, an action brought to recover for professional services, was that the plaintiff had not been examined and had not obtained the required license to practice in that state. At the trial, he testified that by profession he was a physician; that he had practiced medicine seven years; that he was a graduate of Tulane University, and of the Charity Hospital of New Orleans, La.; that he had applied for and received a temporary license from the Mississippi State Board of Health, and that he did not go before the board of examiners at the meeting held just prior to the expiration of such license because he was sick. But, even under such circumstances, the Supreme Court of Mississippi holds that he could not maintain an action for professional services without the license required by law. That he was a graduate of Tulane University, and a skilled physician, it says, was not to the purpose. That he was disabled by sickness from obtaining a permanent license, which, doubtless, he would have done if he had been before the board, was his misfortune. Looking back, it seems that it would have been a reasonable and wise provision of law that it should have authorized the board of health to extend a temporary license for inability to attend a meeting of the board on account of sickness or other adequate cause. But, after saying so much, the court adds, it is for the legislature to insert such provision, and not for the court to ingraft it.—*Jour. A. M. A.*

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## Original Contributions.

### PATHOLOGY, CHEMISTRY AND THERAPEUTICS OF PUTRESCENT PULPS.

BY A. H. PECK, M.D., D.D.S., CHICAGO.

Some months ago I was requested by a local society to read a "five or eight minute" paper. At that time I was conducting a series of experiments in connection with the subject matter which I shall present in this paper. As my work at that time was not completed, I was able only to refer to it in the short time allotted; and I wish to say now, that two or three lines of thought presented in that paper as fact should not have been so stated, because the experimental work followed to completeness has so demonstrated; but as the work stood at that time, in its uncompleted form, I seemed justified in presenting the thoughts. In this paper I shall avail myself of the opportunity to correct them.

In considering this subject in a systematic way, we would first naturally wish to know what constitutes a state of putrescence; what changes in the parts involved are necessary that this condition may be brought about; and what elements, if such we may term them, are evolved and necessary to be destroyed. By consulting various authors to find a satisfactory definition of this condition a variety of opinions will be found; some asserting positively this or that, others so framing their statement that more or less doubt and uncertainty is indicated. We find in Dunglison's Medical Dictionary a more complete and reasonable definition than in any other. He says *putrefaction* is "The decomposition experienced by animal substances when deprived of life and placed under special circumstances. Such change is now in the light of modern research considered as resulting from the action of saprophytic microorganisms. Presence of water is indispensable; the temperature most favorable to it is from sixty to ninety degrees F. The most common products of putrefaction are water, carbonic acid, acetic acid, ammonia, car-

buretted hydrogen, and a semiputrid substance which is volatilized and has an infected odor. State of 'becoming putrid.'

No one denies that the old "chemical theory," if such I may term it, of putrefaction has passed from us never to return. All modern authors on pathological matters are agreed, that after nitrogenous matter has been deprived of its blood-supply, its vitality taken away, thus being changed to a state of gangrene, it must be invaded with microorganisms before the putrefactive process may be inaugurated.

From my experimental work, I find it exceedingly difficult, perhaps impossible, to definitely determine just what are the principal gases and various other products necessary to be destroyed, and that cause us most trouble when we come to apply our therapeutics.

The statement that "hydrogen sulphid is the chief gas evolved" in putrescent pulps has generally been accepted as correct. The first of my experimental work seemed to verify that statement, but later I found it to be incorrect. Indeed, one who studies the process of decomposition of nitrogenous matter carefully, and from a chemical standpoint, must conclude that the exact nature of these products of decomposition which yield odor cannot be definitely determined. It has heretofore been generally stated by dentists that the odor from putrescent pulps is due to the presence of *hydrogen sulphid*. When nitrogenous matter, as for example egg albumen, contains *sulphur*, hydrogen sulphid is undoubtedly a final product of the process of decomposition, and in part must be responsible for the odor evolved. I say in part, because these nitrogenous substances containing sulphur have been treated in various ways, in connection with the putrefactive process, and I have not been able to produce any such odor as sometimes emanates from the pulp-chamber of a tooth.

It is true that the human system contains more or less sulphur, and is the supposition an unreasonable one that dead pulps of teeth contain this element, although it may be present in minute quantities? This granted, are we warranted in attributing all the odor encountered in some cases to the evolution of hydrogen sulphid from the necessarily small quantity of sulphur present? Or is the supposition a reasonable one, that from a union of various other elements that are present, or products that are being evolved, there is generated another odorous substance, other than hydrogen sul-

phid, but the distinguishing characteristics of which in no essential particular differ? I do not feel warranted in making this statement as fact, but from the work accomplished thus far it would seem to be so.

Perhaps from a purely practical standpoint it is not necessary that we understand these things—however, he who would treat these cases intelligently and from a scientific standpoint should seek as complete a knowledge of these conditions as possible, so that knowing the varied therapeutic value of his medicinal agents he may be able to apply those that are best calculated to destroy these obnoxious products of the putrefactive process.

Again, from a careful chemical study of this process, it will be found that ammonia ( $\text{NH}_3$ ) is in all probability the chief final gaseous product, but it is the opinion of the chemists that this has little to do in the formation of the foul odors. I have also determined that *water*, *oxids of nitrogen* and even *free nitrogen*, and most important among these, *carbonic acid gas*, are prominent among the final products of decomposition.

The foregoing are undoubtedly the principal elements, both pathological and chemical, that are naturally found in connection with putrescent pulps, but these are not all. We are forcibly reminded of this fact when we stop to consider that discolored teeth nearly always have previously contained putrescent pulps, or those in connection with which abscesses have formed. We are also familiar with the fact that chemical elements other than those already enumerated are in all probability present; and further, the all-important fact that they are continually uniting, only to lose their individual identity; and as a result of these chemical unions certain other elements of an entirely different nature are produced which are directly responsible for the production of other undesirable results.

Of all the metals iron is no doubt most intimately disseminated throughout the system. An excess of iron may be present in the blood of an individual, and if so the pulps of the teeth will contain their proportionate excess of the metal in the red blood corpuscles. It is the opinion of chemists that an "excess" of the metal in the system is not necessary in order that the following chemical action may take place. In case of putrescent pulp the red blood corpuscles are broken up and the iron is set free. This unites with the hydrogen sulphid present, and sulphid of iron is the result of this

chemical union. Reflect on the number of discolored teeth that come under our observation, in which it seems certain that the discoloration is effected by some salt of iron.

Is it not a reasonable statement, that in individuals who are suffering from pytalism, systemic poisoning by mercury, more or less of this metal finds its way into the pulps of teeth and unites with a portion of the hydrogen sulphid, the result being the formation of *sulphid of mercury*? There may be an excess of manganese in the system, or of lead or other poisonous metals, in which case the *sulphid* of the respective metals may be found in the decaying pulps. Thus it will be seen there are many elements to be considered and to be gotten rid of in the treatment of putrescent pulps, other than microorganisms and their poisonous products.

Putrescent pulps of teeth of individuals who were suffering with pytalism and others with plumbism have been subjected to proper chemical tests, with the idea of revealing the presence of these metals and their sulphids. While this work is exceedingly delicate, and I must confess for the most part unsatisfactory as regards the two metals last named, sufficient has, however, been determined to warrant the statements above made regarding these chemical actions and the formation of these sulphids. As regards the presence of iron and its sulphid there is no doubt left.

Before proceeding with the therapeutics of these cases let us consider some of the seemingly mysterious happenings under certain conditions with putrescent pulps. The fact that pulps die in some teeth and lie dormant for months and even years without causing trouble; and the further fact that the moment the pulp-chamber is opened, thus admitting air and saliva, there is inaugurated an activity that is certainly surprising and seemingly unwarranted, are of interest to us. I have seen cases in practice where seemingly all the processes and changes, both pathological and chemical, incident to putrefying pulps have been inaugurated almost instantly on opening into the pulp-chambers, and notwithstanding that the utmost care has been used in the treatment of them severe apical pericementitis has been caused, and in rare instances even abscesses have resulted. There must be a reason for this, otherwise these cases should yield nicely to treatment as many others do. I have tried to solve this question by adding *fact* to our present theory, but frankly confess that I have been able to accomplish little.

There are many classes of microorganisms that lie dormant, that do not excite fermentation in the absence of oxygen; hence the inactivity of those elements before air is admitted into the pulp-chambers. The moment air passes in, however, the oxygen necessary to arouse to activity these hitherto dormant elements is imparted to them, the varying degrees of activity thus induced being dependent upon the susceptibility and character of the elements present. The fact that with careless operators other microorganisms of perhaps a more virulent and active nature are admitted with the saliva must be a potent factor in causing the rapid and severe changes that occur. In the light of our present knowledge the above explanation seems the rational one for the overactivity of those cases as described, but I believe there is opportunity for further enlightenment on this point.

The fact that the crowns of many teeth containing dead pulps, and hitherto not discolored to any appreciable extent, on being opened into, thus permitting saliva and air to come in contact with the decaying tissue, do discolor excessively in a very short time, is not an infrequent source of much wonder and humiliation. For example, a patient presents with a tooth containing a dead pulp that is causing trouble. The dentist is occupied with other work and can not take the necessary time to make proper treatment. He simply opens into the canal, that the gases which are being generated may escape, thus affording relief to the patient. As stated above, the tooth at this time is not discolored. The patient is dismissed with instructions to return the next day or the day following, when proper attention will be given to the case. At the second sitting it is observed that the tooth is discolored very much, this change having taken place within a very short time. What is the explanation?

It is the same line of reasoning as in connection with the overactivity of the microorganisms in these cases. The various processes incident to putrefaction are intensified when saliva and air are brought in contact with the decaying mass. This seems especially true of those changes or processes which result in the formation of the coloring materials. The reaction, caused by a union especially of the hydrogen sulphid and the oxygenated hemoglobin of the blood, is intensified, thus resulting in the formation of perhaps the chief coloring material, called sulphomethemoglobin, in much less

time and in larger quantities than when oxygen is not admitted. The dentinal tubules become saturated with this and other coloring materials, the formation of which is thus unduly brought about. In therapeutic applications to these cases such occurrences must be avoided. He who permits an undiscolored tooth containing a dead pulp to become discolored to any extent after treatment is commenced is certainly deserving of censure in the majority of cases. After treatment is begun no foreign substances or even medicines should be permitted in contact with the tooth-structure or the contents of the pulp-chambers, except those that are needed to best subserve the interests of the treatment, and that are placed there by the dentist himself. We can not have impressed upon our minds too strongly the importance of extreme care in this regard.

From all this you will readily appreciate the force of the statement, that if we would treat these cases intelligently and scientifically, it is not enough that we simply use a good germicide and deodorant. We must be familiar with the various properties of the medicinal agents to be used and understand their power of destroying the many different elements present in this condition. I would that we could all be first-class chemists, both analytical and synthetic, for then we could subject our medicines to the necessary tests and analyses to determine whether or not they are best suited to successfully combat the various conditions, both pathological and chemical, to which they are being applied, and failing in this, we might be able to compound a remedy that would better subserve the purpose to which it is put. If we have a clear understanding of the various compounds that must be destroyed, and also in a general way of the peculiar properties of the medicines to be used that render them suitable agents to be applied to these various conditions, we are able to treat them intelligently, and with a reasonable degree of assurance of favorable results.

There can be no doubt that in the therapeutics of putrescent pulps those medicinal agents that contain *oxygen* as one of their principal elements, and which are easily broken up, thus freeing the oxygen or a portion of it, are most effective. We must remember that this element, oxygen, when in proper combination is one of the best agents that we have for the treatment of such conditions as obtain in putrescent pulps, and is one of the best of germicides, deodorants and bleachers—the three principal properties to be pos-

sessed by medicines used in these cases. For the reasons cited above I have always contended that the conservative use of such agents as peroxid of hydrogen, hydrozone and pyrozone constitutes a form of treatment which can not be excelled for thorough cleansing. I would, however, advise operators to be very careful in their use of these agents in pulp-canals, and especially that they be careful to secure a full free opening for the exit of the gas evolved, for if the exit be in any way obstructed it will press through the apical foramen and perhaps carry poisonous material before it to the soft tissues of the apical space, causing trouble.

There is an unlimited number of agents containing oxygen that might be used in these cases, but it must be remembered that only those which readily liberate oxygen at ordinary temperatures, that is, those which contain available oxygen, are effective. Water ( $H_2O$ ), for example, contains oxygen, but it is not an active oxidizing agent, because the affinity between the hydrogen and oxygen is so strong that the latter is not readily liberated under ordinary conditions, as is the case with peroxid of hydrogen ( $H_2O_2$ ) and the other agents belonging to the same group. In these compounds the combination is very unstable, and they readily break up into  $H_2O + O$ , and this nascent O, thus liberated, brings about the strong oxidizing action characteristic of these agents.

Potassium permanganate, with a chemical formula of  $K Mn O_4$ , in proper solution is a valuable agent in the treatment of these cases. Nascent O is readily liberated and enters into combination with the various products of the putrefactive process and by oxidation destroys them. As a deodorant it is one of the best agents we have. We may truthfully say that *nascent oxygen* is the only great chemical purifier. Indeed, this is nature's method of getting rid of such objectionable conditions as these under consideration.

In a previous paper I am made to say that "no medicines should be used in these cases and remain any length of time, until the contents of the pulp-canals have been as carefully and thoroughly removed as possible by mechanical means." There is some probability that this statement may be misunderstood. I do not mean it should be our aim to completely remove the putrescent material from the pulp-canals at the first sitting—perhaps some of us are familiar with the extreme ease with which poisonous material is forced through the apical foramen, causing abscesses to develop.

What I mean is, that after a portion of the putrescent material has been removed, the medicinal agent placed in the canal should not be permitted to stay more than two or three days before the remainder is carefully but thoroughly removed. If permitted to remain too long discoloration is probable and not infrequently occurs as a result of the action of the medicine and the various elements contained in the putrefactive mass.

There is an agent to be used especially as a deodorant about which we hear little, but it is one which I use with so much satisfaction that I deem it worthy of mention. It is meditrina. This is only purified sea-water charged with electricity, and while a fairly good antiseptic it is not so potent as has been claimed. Just how meditrina acts as a deodorant I have not by experimentation been able to definitely determine. I think, however, there is no doubt that its virtue in this connection is largely due to the nascent chlorin evolved by it. It is claimed that it enters chemically into combination with the mephitic odors and gases and in this way effects their destruction.

In the general treatment of these cases our thoughts most naturally revert to a consideration of the *essential oils*. That we may intelligently use these agents it is not sufficient that we understand only their value as antiseptics and germicides and their therapeutics as regards soft tissue; we must study them with a view of determining what other properties or elementary constituents they possess that render them useful in destroying the various products of the putrefactive process, as well as the microorganisms and their poisonous products. A study of these oils from a chemical standpoint is a very delicate matter and unsatisfactory in a large degree, as it is difficult to definitely determine facts.

From the U. S. P. we obtain a partial classification, and I have been able to determine some things in addition. Putting them all together, I am pleased to present the following classification: First, those composed of hydrocarbons only, as oils consisting chiefly of terpenes ( $C_{10}H_{16}$ ), such as oil of turpentine, of lemon and of camphor. Second, those containing hydrocarbons mixed with oxygenated products, as oils consisting chiefly of cedrenes ( $C_{15}H_{24}$ ); such as oil of cedar, of cubebs and of cloves. Third, oils consisting chiefly of aromatic aldehyds and allied bodies, such as oil of bitter almonds and of cinnamon. Fourth, oils consisting chiefly of



ethereal salts. These may be either (a) oxygen salts, as in winter-green or (b) sulphur salts, as in oil of mustard and of garlic.

The first division, or terpenes, being allied to the hydrocarbons, are those composed chiefly of hydrogen and carbon. The second division, or cedrenes, mean a volatile liquid hydrocarbon found in the oils of this division. They also possess a camphor which is deposited, the formula of which is  $C_{15}H_{26}O$ . Thus the benefit of the action of the element oxygen is obtained. You will observe that oil of cloves, one of our most useful agents, belongs to this class. The third division, or those consisting of aromatic aldehyds, mean the presence of aroma in a class of compounds intermediate between alcohols and acids, derived from their corresponding primary alcohols by the oxidation and removal of two atoms of hydrogen, and converted into acids by the addition of an atom of oxygen. Oils of cinnamon and cassia belong to this division. Is not this fact, that they partake largely of the nature of acids, a just explanation of their extremely irritating properties manifested when applied to soft tissue. In the fourth division, or those containing ethereal salts, we find oxygen as one of their elementary constituents, as the formula of ether is  $(C_2H_5)_2O$ . The oils of this division that are of sulphur salts, and which are proper to be used in the treatment of these cases, may be employed to excellent advantage after the general debris of the putrefactive process has been thoroughly removed from the canals, as there is evolved from them a product of the sulphur series, which in combination with water forms an excellent bleaching and disinfecting agent.

Whether we are justified in stating, from a purely chemical and scientific standpoint, that special value should be attached to the use of those oils that belong to the oxygen series is a question. I have been unable to demonstrate one point which I had hoped to do, and that is, that the oxygen is liberated from the combination, thus furnishing nascent oxygen for action. However, from a practical and clinical standpoint the special value of this series of oils in the treatment of putrescent pulps can not be denied.

Some two years ago, I obtained a sample of the first lot of synthetic oil of cinnamon received in this country. On experimenting with it in various ways I was much impressed with the activity it exhibited in producing results. This was especially noticeable in its action on soft tissue. Its irritating properties were manifested

in less time and at first in a more vigorous manner than was the case with the natural oils. I then remarked that this difference in action must be due to the fact that it is a made oil, and that the union between the atoms of the various elements of which it is composed is relatively unstable, so that the compound is readily broken up, thus setting free the various elements and enabling them to act independently and more rapidly in producing results. Possibly, in the not-far distant future some of the most available and potent antiseptics, germicides and deodorants may come to us from the laboratory of the chemist in the form of synthetic preparations.

### ALUMINUM VERSUS GOLD FOR CLASPS.

BY H. R. NEEPER, D.D.S., HANNIBAL, MO.

Ancient and modern dentistry have used the clasp and various modifications of it for retaining partial dentures in the mouth. The objection to this otherwise useful device is that the teeth embraced are specially prone to decay on the surface covered by it. As this condition occurs in mouths which are given fairly good attention, as well as in those that are more or less neglected, it is clinically demonstrated that these aids should be used only when absolutely essential to the fit or rigidity of the denture. The foregoing applies to gold clasps made to fit closely or to touch at one or two points only at opposite sides of the tooth.

Nine years ago I made some clasps of aluminum, and as they proved satisfactory and were not expensive I used them more frequently. As the years passed I had to put crowns on teeth which had been clasped, or else treat the sensitive places on them with nitrate of silver. In this work it suddenly dawned on me that no aluminum clasp had caused any trouble, nor have I yet seen any bad results from one of this material.

My method of making and attaching is as follows: A model of plaster or fusible metal is secured of the tooth to be clasped; a pattern of thin sheet lead is made exactly as I wish the clasp, and a piece of aluminum plate of desired gauge is cut to pattern. Holes are punched with a fine pointed instrument from what will be the inside of the clasp, which leaves them countersunk to engage the rubber, and they will be found strong enough to stand all ordinary strain. Now fit clasp to model and also to tooth in the mouth. The holes and countersink are filled with wax, placed on the tooth

and brought away in the impression, after which proceed as usual. I have no theories to offer as to the difference in effect on teeth clasped with aluminum or with gold—all I can do is to state the facts, but my experience would seem to offer a fertile field for thought and investigation, and perhaps aid us in remedying this troublesome feature of our work.

## THE SCIENCE OF DENTISTRY.

By F. A. HUNTER, D.D.S., CINCINNATI, O. READ BEFORE THE CINCINNATI ODONTOLOGICAL SOCIETY, OCT. 25, 1900.

If in the reading of this paper I have any difficulty in the pronunciation of my words, or if my enunciation is not so distinct as of old, you must lay it to the fact that I am wearing artificial teeth. The cause of my misfortune is the failure of the science of dentistry—the fact of my being able to wear a plate with a fair degree of comfort is due to the art of dentistry.

There is a tendency in all professions to magnify their own importance, and our own is not exempt from the general rule. I do not wish to belittle the art of dentistry—on the contrary, there is no one who has a higher appreciation of its benefits or a greater regard for the members of this calling, but when we talk of the science of dentistry we lower ourselves to the plane of the medical profession, which is practiced by empiricism and experimentation. What little science we have has been borrowed from our medical confreres, and the reflected light from so limited a source is small indeed. The standard dictionary defines science as "Knowledge gained and verified by exact observation and correct thinking, especially as methodically formulated and arranged in a rational system." With this definition in view I desire to review some articles recently published in one of our scientific journals.

Some months ago the editor of same propounded a question, and it was answered by sixteen of the representative men of the profession. I say representative, because they were nearly all professors in our colleges, and several of them deans of the respective schools. The query was, "Do you believe an oxyphosphate filling in a deep cavity carries danger to the pulp? If so, will you explain how the pulp is destroyed—whether by chemical action, or by the mere juxtaposition of a foreign body? If by chemical action, will you explain what this action is, and how it operates from a mass so

dense as oxyphosphate? If you do not believe that an oxyphosphate filling is dangerous to pulp vitality, can you account for the dead pulps reported upon the theory that the pulp, prior to insertion of filling, was either so diseased or else so closely approached that it would have died under any sort of filling?"

In the answers as published six said "Yes"; seven said "No"; two said "Yes" and "No," or practically said nothing, for the last part of their articles contradicted the first part; one said "Improbable," but acknowledged that he did not know. There was a decided tendency with most of the writers to fill space, but the majority of those who said "No" were short and to the point, one consuming only four lines. Another who said "No" at the beginning of his article used up a page and a half and before finishing practically said "Yes." Nearly all of those who said "Yes" had a string tied to it, and made so many qualifications that their answers were deprived of the value they should have had, coming from such men. They did not give an opinion based upon their own experiences, but the dead pulps they found were always under the fillings of "the other fellow."

Some of the writers spoke of the presence of arsenic in the oxid of zinc, and thought that might account for some of the cases of pulp devitalization. Now, if the powder of the cement contained arsenic in a form and of a potency to be inimical to pulp structure, it would not only destroy some pulps, but would be entirely unfit for use as a filling material—unless you wished to kill all pulps, and that could be accomplished in an easier way. The presence of arsenic in a form dangerous to pulp structure has been shown by experiments not to exist, and even should we doubt the result of these tests, our own clinical experience ought to be sufficient, for we know that pulps do live under oxyphosphate.

Those who answered in the negative were not required by the question to give more than their opinion, that the loss of pulps "reported" would have occurred under any filling; but those who answered in the affirmative were asked to give scientific reasons to support their belief, and the reasons given were the greatest mass of twaddle, ignorance and guesswork that has ever been published on a scientific subject. They all speak of the "chemical action of the phosphoric acid" that constitutes the fluid of the compound, but none of them even attempts to explain what that chemical action is.

They all speak learnedly of phosphoric acid as the fluid, probably not knowing that it is a tri-basic compound, and that each form has entirely different properties. One man had such a fear of this acid that he mixed the fluid of the cement with water and oil of cloves before mixing it with the oxid of zinc—a fine chemical combination; but then he says further on in his article, "Unfortunately I know very little about chemistry." It was hardly necessary to make that confession. The height of absurdity was reached by one who started off with a flourish, marched all around Robin Hood's barn, and spoiled four pages in trying to tell what he did not know. He succeeded fairly well, for he contradicted himself twice, and finally concluded by saying—"The bacteriologists must investigate this, so that we may have definite knowledge." The only answer out of the entire lot that had even a smack of scientific investigation was that of a manufacturer of cements, and it is probably due to the fact that he knows something of them.

In order to give these gentlemen and also our members here assembled a chance to criticize me, I will make a few remarks on the above subject. Of course from the question I take it for granted that the pulp is in a normal condition—is not exposed, and is not covered merely by a thin layer of "slush and feathers." Nothing is said in the question about varnishing the cavity, but any dentist in this day and age who would fill a deep-seated cavity with any filling material without previously varnishing is not doing the best he can. Granting that the pulp is normal, my experience has been that oxyphosphate is not only safe and reliable, but necessary as a foundation for the superstructure. The capping of exposed pulps, and the treatment and filling over decalcified dentin, are other things. In my judgment, as a rule the best capping for exposed pulps is arsenious acid, or pressure anesthesia with cocain accompaniment.

The filling over decalcified dentin can be successfully accomplished under certain conditions, namely, where there has been no irritation of the pulp; where the layer of dentin has a leathery consistency and is a layer, not a mass of slush, the easy removal of which would expose the pulp. Then with the use of a saturated solution of bicarbonate of soda, to neutralize the acid condition of decomposition, and next with carbolic acid and hot air to sterilize the aforesaid layer, you can safely varnish, cap with oxyphosphate

and fill. However, you can not sterilize that layer in a minute; it will take time and patience and frequently more than one sitting. The failure to preserve a pulp under these conditions is due more to the inability to render the septum aseptic than to any other cause.

Discussion. *Dr. J. S. Cassidy:* In regard to chemical relations, etc., how can you observe the chemical action in a spot like the pulp of a tooth? You must theorize on that subject, for experiments made outside do not prove the condition the pulp is in or what the action would be on a live one. There is no doubt that the living pulp would be irritated by phosphoric acid, and irritation produces inflammation on such tissues as the pulp. We do know that pulps die under such fillings, but they might die under any other just as readily as under the oxyphosphate, providing they were as nearly exposed. Pulps die without any filling over them, and in the absence of decay, shock or injury. I am a friend of oxyphosphate and see no use in denouncing same since we all must use it.

*Dr. H. A. Smith:* It seems rather unjust to criticise these gentlemen who have perhaps not hit the mark, because their effort was all in the line of progress. Lately something has been done in the direction of pure science. I refer to a paper read by Prof. J. Choquet before the International Dental Congress this summer, and Dr. Hunter will take back some of his positive statements if he reads that paper carefully. Varnishing a cavity does no good, and sterilization is not accomplished, for caries still progresses in the layer of dentin over the pulp. No matter how carefully the work is done, the pulp becomes infected in a few years and dies. If this be true at all it explains many cases of irritation of the pulp and its death. Prof. Choquet infected the teeth of living animals with the active agent of caries. After a year he removed the cement fillings and infected teeth out of the mouth from that which had been growing all the time under the filling. If this be true we are as yet a long way from the solution of the difficulty.

*Dr. J. R. Callahan:* Prof. Choquet's paper is in line with my own observations. During my experiments I have made a great many slides, and have yet to make the first one from a decayed tooth which did not show what seemed to be a dark connection between the pulp-chamber and floor of cavity. It is impossible to know the exact condition of this overlying stratum, for the germ-

product seems to reach almost to the pulp in all cases I have examined. Even with a magnifying-glass you can see in many cases that the tubules are infected clear to the pulp-chamber.

*Dr. M. H. Fletcher:* My own work in histology has shown that any irritation at the periphery of the dentinal tubules will affect the pulp, and the result in most cases is to stimulate it to build dentin. This work generally so contracts the pulp-chamber that death of the pulp is assured. Where there is a cavity or filling on the outer surface, or any substance there which would irritate the terminal ends of the fibrillae, we always see a zone of affected dentin running to the pulp, and neither oxyphosphate, gold nor amalgam are needed to produce that result. Of course the susceptibility of different pulps varies. In a few cases the tooth-crowns are decayed almost away, yet the pulp will live something like a fungus growth. These are very rare, however, so the whole question rests upon the vitality that may be in an individual pulp, or the power it has to maintain its existence against all encroachments. In view of all this I do not believe that cement fillings cause any more trouble than other fillings or other irritants.

*Dr. O. N. Heise:* I agree that men should not make positive statements about subjects when in fact their knowledge is based upon guesswork. The philosopher was right when he said: "What we are said to observe is usually a compound result, of which one-tenth may be observation and nine-tenths inference." I can not, however, agree with all of Dr. Hunter's remarks about the science of dentistry. His loss of teeth was not due to the failure of dental science but to the lack of proper understanding and application of it. The very art upon which he lays so much stress is dependent upon the science of chemistry and metallurgy. Again, the work of Black, Miller and Williams is surely scientific, and the names of many other men might be enumerated who have made a scientific application of the knowledge of anatomy, bacteriology, etc., to the practice of our profession.

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## PRESSURE ANESTHESIA.

BY W. J. HIGGINS, D.D.S., TRAVERSE CITY, MICH. READ BEFORE MICHIGAN STATE DENTAL ASSOCIATION, AT KALAMAZOO, JUNE 11-13, 1900.

Since last November I have used only this method of anesthetizing pulps, and have found it equally available in incisors, bicuspid and

molars. In every case I have met with success in removing the pulp and filling the roots immediately. My method is as follows: After adjusting the dam I locate the exposure, or if there be none, I expose the pulp as carefully as possible. It is not necessary to have a bleeding pulp, but in cases where it can be done without much pain I cause a slight flow of blood. Then place a few pure cocain crystals on a glass slab and add enough water to make a saturated solution. Next saturate a small pledget of cotton with the solution and apply to exposure. Now take vulcanite rubber of a size that will fit into the cavity snugly, and by light and slow pressure on this with a burnisher the pulp will be gradually anesthetized. When there is no response to hard pressure the vulcanite and cotton are removed and the pulp extracted. Often there is bleeding, but it can be quickly stopped by hydrogen dioxid. Then I dry the cavity thoroughly, seldom using anything of a sedative or antiseptic nature, fill the roots and insert the filling or adjust the crown without fear of future annoyance. There may be slight tenderness for a day or two in a tooth treated as above, but the liability is not so great as where arsenic has been applied.

Discussion. *Dr. B. H. Lee:* This is not a good method to use in all cases, for the pulp tissue cannot be gotten out of the smaller canals in bicuspid and molars without much pain, as it seems impossible to anesthetize these fine nerve filaments. The operation is, however, very good for the anterior teeth.

The name "Pressure Anesthesia" will bear criticism, as it is not the pressure which causes anesthesia, but the infiltration of cocain into the tissues. I have tried pressure alone on several exposed pulps, but it always failed to anesthetize. Dr. Schleich combines pressure with the solution which is injected into the tissue. He marks out the area to be operated upon and inserts the needle, filling the tissue with liquid. This seems to be the same idea upon which our practice is based, and we should therefore call ours likewise infiltration.

*Dr. J. H. Stofflet:* I saw a case recently where the pulp had been extracted with pressure anesthesia and the tooth dropped out three months later. I would ask if anyone can explain this, or if any have similar experiences to report.

*Dr. P. F. Hines:* A combination of this method with another idea works admirably. First anesthetize the outer surface of pulp



with pressure and then inject with the needle. This gives much better, less painful and quicker results than does either method alone.

[EDITOR: In the September, 1900, *International* was an article on the above subject by Dr. Wilson Zerfing of Philadelphia, read before the Philadelphia Academy of Stomatology, April 24, 1900. He commenced by using formalin, one part; absolute alcohol, five parts; and pulverized cocain crystals, taken up with a piece of spunk saturated with the solution, and just the size of opening of exposure. Later, it was determined to use alcohol alone with the cocain, and the result proved quite as successful as when formalin was added. The author was greatly pleased with the treatment, but also described a later method which he had been employing. A very fine hypodermic needle was placed upon the exposed tissue and a drop of chloroform forced on it, immediately after which the needle point was driven into the tissue, together with additional chloroform. In this way the needle may be entered with almost no pain and after a little more chloroform has been injected the pulp can be removed without sensation. In the November number of same journal is the discussion upon this paper, and we give the salient points of same below.]

*Dr. Louis Jack:* I either instil cocain or use cataphoresis. With the former the dam is applied and cavity filled with a saturated solution of cocain. In a few minutes I am able to insert the broach and continue instillation to the apex of canal and remove the pulp. Where patients are from out of town or live at a distance the old method of using arsenic wastes entirely too much of their time. In a few cases, however, I have first devitalized a portion of the pulp with one application of arsenic, and desensitized the remainder by instillation.

In most cases I prefer cataphoresis, which occupies perhaps fifteen minutes in desensitizing the entire pulp. In one case recently the pulps were not exposed, but the teeth had been abraded nearly to the gum. In one the resistance to current was so great that only one-fortieth of a milliampere was passing. The surface of dentin was so dense, because of abrasion, that after trying to introduce the cocain I had to drill some little distance below the surface and recommence the cataphoresis. However, it took only eighteen minutes to deaden and remove the pulp. Where the pulp is not anes-

thetized clear to apex of root the remaining portion can be anesthetized by instillation.

*Dr. Joseph Head:* Arsenic has never proved satisfactory in my hands, so I have adopted the following method—I drill into the tooth as far as possible without giving too much pain, and then fit the nozzle of hypodermic syringe into this opening by means of a packing of rubber-dam, so that when I inject the solution full pressure can be obtained. When the patient is under nitrous oxid gas I drill through into the pulp-chamber and inject one to two minims of a ten to fifteen per cent cocain solution, and when he recovers consciousness the pulp is usually insensible. Then I make another injection to be sure of anesthesia and remove the pulp. Cocain is inactive for certain people. I have injected it into the pulp with pressure and that organ has remained absolutely unaffected, although the patient has had some slight systemic effects from the cocain, showing conclusively that it entered the tissue.

*Dr. A. N. Gaylord:* I sharpen the point of my hypodermic needle as finely as possible with a sandpaper disk and take off part of the bevel, so that the point need not be inserted deeply under pulp before the hole can be embedded, and the solution go directly into the pulp. I find that cocain will penetrate the pulp much more easily than it will gum tissue. The solution used is one published somewhere and consists of cocain, ten grains; carbolic acid, ten grains; atropia, one-fifth grain; ten minims of a one per cent nitroglycerin solution; water, two ounces. With this I have never yet had any ill-effect, either sloughing, paroxysms, or heart trouble, although I have always employed it where necessary to use cocain.

*Dr. H. C. Register:* I use four solutions—one with alcohol, one with chloroform, one with alcohol and chloroform, and one with fifty per cent solution of sulphuric acid. Cocain mixes with all of these readily, and with the last named it is one of the best things I know of for desensitizing hypersensitive dentin, but the acid and its effects should be removed before filling. In some cases I have used successfully a seventy-five per cent solution of nitrate of silver, holding it against the exposed portions for a few seconds. It is a strong coagulant and will enter the pulp some distance, when you can insert cocain hypodermically.

*Dr. T. V. Smith:* Age cuts quite a figure in this work. In

patients from twelve to fifteen years old the pressure seems to cause more pain, and in one case I could not obtain anesthesia. Arsenic was therefore used, and on opening into the pulp I found the entrance to apical foramen quite large and considerable blood present. Beyond seventeen there seems to be little sensation either upon pressure or upon removal of pulp. A good exposure must be obtained, all blood be cleared away, and no hemorrhage allowed while the operation is in progress.

*Dr. W. H. Trueman:* I have seen cases where the pulps have been removed under gas, under cataphoresis and by means of other methods, and the teeth have never been comfortable afterwards, in some instances giving so much pain that they had to be extracted. There was no apparent reason for this and I think more experimentation is necessary before we can decide upon a universal method. The question is, is it better to extirpate a live pulp wholly or partially anesthetized, or one that has been devitalized and has severed its connection with the surrounding tissues? Is the danger of the devitalizing agent passing beyond the apex of root greater than that caused by leaving some portions of the tissue in the pulp-cavity, owing to the impossibility of thoroughly removing from it a pulp that still retains its normal connection with normal tissue? It is generally conceded that the pulp is not a mere occupant of the pulp-chamber, but that it is intimately connected with the tubules and apical tissues, and that upon devitalization these connections are severed and it is possible to thoroughly remove the pulp. Now can we do it when the pulp is in a normal condition?

*Dr. M. I. Schamberg:* Is the anesthesia due to cocain or to pressure? At first the application of cocain may allow a certain amount of pressure, but if you press upon a vascular part, enclosed in a bony cavity, you will impede the circulation, and I doubt if any cocain is absorbed after pressure has once been applied. After that the anesthesia is due to temporary paralysis of the nerves which permits extraction of pulp. Sufficient cocain can not be taken up by the pulp to thoroughly anesthetize it by simple contact. Pressure anesthesia is better than injection of cocain or application of arsenic, because there is little danger of anything being forced beyond the apex.

*Dr. Zerfing:* All of my failures have been in young patients, and I have not found that advanced age militates against the suc-

cess of treatment. The time required varies from half a minute to ten minutes in either anterior or posterior teeth, but the average time for anterior ones is from two to three minutes.

**HEREDITY**—Prof. Arthur Thompson's lecture on "Heredity" at the Royal Institution of Great Britain was an able and lucid exposition of an exceedingly difficult subject. Three kinds of inheritance were distinguished: (1) Blended, in which the character of the two parents in regard to a particular structure, e. g., the color of the hair, is intimately combined in the offspring. The form is well seen in hybrids and is probably the most frequent mode of inheritance. (2) Exclusive, in which the character of one parent is suppressed in regard to a structure, e. g., eye-color. (3) Particulate, in which part of a given character is wholly paternal and part wholly maternal. Suppose the parents of a foal to be light and dark. If the foal is piebald the inheritance is particulate. Inheritance is not dual but multiple. A man, says Mr. Pearson, "is the product of all his past ancestry, and unless very careful selection has taken place the mean of that ancestry is probably not far from that of the general population. In the tenth generation he has theoretically 1,024 tenth great-grandparents. It is the heavy weight of this mediocre ancestry which causes the son of an exceptional father to regress toward the general population mean." The transmissibility of acquired characters was considered not to have been established, but if the effects of "nurture" could not be entailed on the offspring, it was all the more important to secure for them good "nurture."

**POWER OF THE EYE.**—"We often hear," writes H. M. Stanley, "people say that they can merely by a steady gaze affect a person at a distance, who is not looking at them, and some say that they are able to make one sitting in front turn the head in this way. Mr. Bell in his 'Tangweera' mentions this feeling when he says: 'Presently I felt as if some one was looking at me, and raising my head I saw a large puma standing ten yards away.' To the physiologist it may seem uncalled for to investigate a manifest absurdity, but it has at least a practical value to explode a common error by direct experiment. I asked a young man, who is very confident of his powers, to stand unknown to reagent A behind a bookcase and look through a carefully concealed peep hole. I gave him the best opportunity, placing A about four feet from the hole directly facing him, and I engaged A in mechanical writing. To the young man's confessed disgust and irritation he was unable to disturb A. My few experiments were negative in results. However, it may be that telepathic influence is exerted under certain conditions, and experiments with twins and others constantly *en rapport*, especially when under emotional stress and at critical junctures, might be worth trying. If there is nervous telepathy, this is perhaps as simple and common a form as any. If disturbance arose subconsciously the test would be that the tracings from an instrument, to show nervous conditions, should show large fluctuations coincidentally with the times when the agent regards himself as successful."—*Med. Rec.*

## **Digests.**

**TEETH OF CANDIDATES FOR THE METHODIST MINISTRY.** The spirit of the age was quite apparent in the discussion which took place at the Wesleyan Methodist Conference. A proposal had been sent by the committee, which was based on the advice of the medical men who examined into the state of health and condition of body of the candidates, to the effect that each candidate, before presenting himself for examination, should take care to have his teeth put in proper order. The doctors further said that they could not take the responsibility of recommending many of the men for foreign service unless this were absolutely insisted upon. This is a most wise suggestion on the part of the medical officers, and one we hope they will not allow to be forgotten. It is only surprising that it has not been made before. Men volunteer as foreign missionaries, which means that they are prepared to devote themselves to a most laborious and harassing life, and it is only common sense that their bodies shall be in such a state as, under all ordinary circumstances, will resist disease, the exhaustion of labor and mental worry; and, as a rule, they try to render themselves as fit as it is possible for them to be. Under these circumstances, is it not strange that the teeth—the seat of the most wearying pain a man ordinarily suffers, the guardians of the stomach and digestive organs—should be partially if not entirely neglected? We have seen how our soldiers in Afghanistan, and lately in the Transvaal, and the American troops in Cuba, were rendered ineffective through toothache and kindred troubles; and we can imagine the wretched plight of a poor missionary, miles away from dental aid, groaning out his desire for death or an earthquake, because he was allowed to go to his duties with defective teeth. We hope this new departure of the Wesleyan Conference will commend itself to other missionary bodies who may be acting in ignorance of the dangers, both to body and soul, their missionaries may be running from neglect of a simple and obvious precaution.—*Brit. Med. Jour.*

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**SENSITIVENESS OF DENTIN.** By Alfred Gysi, Zurich. Read before the International Dental Congress, at Paris, August, 1900. The author allies himself with those who hold that the den-

tinal canalicules do not contain either nerves or fibres fulfilling nervous function (comparable to the roots of the retina, etc.) The contents of the canals, of which there is such an extensive network of branches in the dentin, he considers serve only the purpose of maintaining the organic fundamental substance of the tooth in a condition of vitality and elasticity.

"The sensitiveness of dentin," says Dr. Gysi, "is only of a secondary nature, and is not physiologic. The physiological sensibility of dentin is sufficiently provided for by the pulpa and the periosteum, so that the supply of nerves in dentin would be superfluous. If the dentinal canalicules contained nerves, the progress of caries would be painful, which is not the case so long as the pulp is not attacked."

That dentin is, nevertheless, highly sensitive is an undeniable fact which he explains in the following manner: (1) No one has yet succeeded in proving that the contents of the dentinal canalicules consist of nervous substance. (2) All we know is that the dentinal canalicules are filled with a watery organic substance which existed in the developing tooth long before a trace of nervous fibres could be found in the dental pulpa. Consequently these nervous fibres would have to displace the already existing dentinal fibres and grow into the dentin in their stead, which is highly improbable. (3) It has been shown that only on the inner boundary of the dentin around the odontoblasts there exists an abundant network of the finest nerve fibres. (4) From physics we know that water is a practically incompressible substance (to speak exactly, water is compressible only to the extent of 1-millionth part of its volume). To illustrate this by an example: the aqueous content of a rigid tube one meter in length can be compressed only to the extent of 1-thousandth of a millimeter. Consequently the aqueous content behaves as an extremely rigid substance. In the case of a tube open at both ends and full of water, pressure exerted at one end would thus be quite directly transmitted to the other end, and that with undiminished strength.

From these premises I argue as follows: A pressure or a drawing exercised upon the aqueous content of a dentinal canalicule that opens into a carious cavity is directly transmitted to the other end of the dentinal canalicule, where it is loosely closed by the odontoblasts, and then the odontoblasts which are abundantly interwoven with nerves feel the pressure or drawing as a sensation of pain.

Pressure is exercised generally only by the excavating instruments, and that especially when they are blunt and are directed against instead of away from the dentinal tubes. Drawing is chiefly exercised when hygroscopic substances, or such as have an affinity or thirst for water, such as salt, sugar, alcohol, etc., are introduced into a carious cavity, inasmuch as they greedily attract the aqueous contents of the dentinal canaliculi to themselves. For this reason almost all so-called dentinal anesthetics cause the patient more pain than they save. If, on the other hand, the aqueous contents of the tubules are dried up over a greater or less region, then pressure can be exercised only on an extremely elastic column of air, and is therefore not so violently nor so suddenly transmitted to the fluid contents found further inwards and by these to the odontoblasts.

I would therefore suggest that only the odontoblasts, or the nerves immediately surrounding them, feel external influences, while the dentinal fibres themselves do not. For even with the aid of cataphoresis dentinal anesthesia does not succeed until the cocain has penetrated to the odontoblasts, which can be demonstrated by the use of anilin blue solution of cocain.

When, however, the external portion of the contents of the tubuli is caused to coagulate through the introduction of substances to coagulate albumen, such as carbolic acid, formol, sublimate, etc., and thereby loses its mobility, then also the great sensibility disappears. But since even a thin stratum of the coagulated contents of a tubule offers considerable resistance to the further penetration of the coagulating agent, it would probably be impossible, in a time sufficiently short to be practicable (2 to 5 minutes), to cause the coagulation of a sufficiently deep layer. If, however, one makes a so-called inlay which has several days' time in which to act, then it is possible to save the patient much pain when excavating. It would therefore be a serviceable task to discover an albumen-coagulating agent which would work slowly, and consequently painlessly, that would not discolor the tooth, and not exercise any injurious effect on the pulp.—*Brit. Jour. D. S., Oct. 1900.*

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OXID OF ZINC AND EUGENOL AS A COVERING TO PULPS. By S. B. Luckie, D.D.S., Chester, Pa. Read before N. Y. Institute of Stomatology, May 1, 1900. That which makes the mixture of oxid of zinc and eugenol of value is that it possesses

the properties of a good protector to the pulp, a therapeutic agent and a filling-material combined, and can be used as either one or all, if desirable, in the same case. It makes a good covering for arsenious acid, as it can form the peripheries of the cavity be domed over the application, thus avoiding pressure, and being a soothing obtundent, it adds to the possibility of lessening or preventing the pain so likely to follow arsenical dressings.

The evidence of its having therapeutic properties comes from clinical observation alone. Teeth that have ached from pulpitis, after having the pain relieved, if filled with it will often remain comfortable for months, extending into years in some cases. Eugenol, as given by Merck, is antiseptic, antitubercular, and a local anesthetic. Oxid of zinc is a tonic, antispasmodic, and astringent; in general medicine it is used as an exsiccant on excoriated surfaces, either by sprinkling or in the form of an ointment. What therapeutic advantage, other than to make a mechanical agent to protect from external irritation, is gained by mixing the two drugs I have not been able to find out. If, however, the properties of each be retained after the mixture is made, it is hard to conceive of more desirable properties for a lining or as an intermediary in deep cavities.

While its virtues are many, I do not wish it understood that they are extolled to the same degree as is done for proprietary cements for pulp-covering and dressing; it will not in all cases maintain comfort in all the stages of pulpitis, nor does it do away with all pulp devitalization and extirpation, but in the hands of the careful and conscientious practitioner it will aid in giving comfort after filling in those cases of sensitive dentin and of deep-seated caries, and very greatly reduce the number of cases of pulpitis and pericementitis that occur in filled teeth. It can be used to fill deciduous teeth where it would not be wise to prepare the cavity for a metal filling, and is often preferable to gutta-percha, as its use is more possible to maintain comfort and prevent pulp and peridental complications. It makes a good trial filling where caries has approached very near the pulp, and if no complications follow, when worn away it can be covered with amalgam or gold.

In those teeth where the pulps have died under a filling of oxid of zinc and eugenol, the first case is yet to be presented with the pulp putrescent and foul smelling, as the contents of the chamber and canals are always dry, and there is no exhibition of peridental



irritation. Of course, it is to be understood these were cases seen before the filling had wasted sufficiently to allow the fluids of the mouth to enter pulp-chamber.

As an intermediary under zinc phosphate fillings it will prevent the phosphoric acid from irritating the pulp. In all cavities of much depth on the occlusal surfaces of bicuspid and molars it should precede the filling, and in approximal cavities a pad of it should be placed on the region overlying the pulp, the mix being made quite thick to hasten the setting, and the cavity walls be covered with a quick-drying lining and filled with whatever material is designated.

To enumerate, the cement made from oxid of zinc and eugenol is useful to fill cavities with extremely sensitive dentin for a period of time elapsing from a few weeks to months, as a trial filling, as an intermediary in deep cavities, as a covering for pulp and canal-dressings, and as a non-removable canal-filling. As a canal-filling it can be used with advantage on account of its slow setting, allowing more than ample time for its introduction. The method adopted for canal-filling is to pump it in with Swiss broaches until all possible parts of the canal are apparently reached by it, when a cone of temporary stopping is placed in the canal and pressure made towards the apex.

With an experience of about six years it has been a valuable aid in the treatment of teeth and in preventing the discomfort from thermal changes that so often follow their filling. I am not unconscious, however, that it might be improved by the addition of other antiseptics; indeed, it has often occurred that a series of bacteriological experiments might be conducted with advantage to prove the value of different intermediary used between filling and dentin, or as pulp caps. Aristol or hydronaphthol can be mixed with oxid of zinc in equal quantity, and if mixed with eugenol a cement with about the same degree of hardness is obtained, though clinically I obtained no advantage from the addition.—*International, Oct. 1900.*

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**RIGGS' DISEASE AND GENERAL PRACTICE.** By Howard T. Stewart, D.D.S., Greenville, Miss. I prefer the term "Riggs' Disease," as nothing else has ever proved satisfactory. This at least covers all phases of whatever trouble it is that causes bone to absorb, gums to recede, and teeth to loosen. For years I observed that the teeth which were scraped most under the gums

yielded most readily to treatment. When it was necessary to wound the gum severely and tear up the pericementum in order to get away real or supposed tartar, I noted that much better results were obtained than where little scraping was necessary. This of itself was startling, as I had always been taught to wound the gum as little as possible and preserve the pericementum as nearly intact as was consistent with removal of the tartar. I also noted that the application of medicines where no tartar was present accomplished nothing, except to allay the inflammation a short time. I began to wonder how this could be. When we unwittingly produced great irritation and inflammation in the tissues we were trying to heal, why should we obtain better results than when violent inflammation was not present? I noted too, that nearly every writer on this trouble advocated the *absolute removal of all tartar—the thorough cleansing of the root*—and I wondered if the removal of the tartar alone produced the results which the writers claimed; or was it the unwitting removal of dying cementum and bone and the production of new tissue by the violent inflammation thus excited? Men produced partial results in this way, having no idea why they got the results. They were rarely permanent, because it was an accident if the operation was thoroughly done, the operator having in his mind only the removal of tartar.

At all stages of the disease the treatment is essentially as follows: Entire mouth is rinsed thoroughly with permanganate of potash, half grain to the ounce, and the gum about tooth to be operated on is wiped thoroughly with cloth saturated with the solution, to get surroundings in aseptic condition. The part is now protected from the saliva with napkin. The napkins are three and four inches square and are torn from soft domestic. Two or three can be rolled together when necessary. They are, of course, thrown away after use. The gum is now touched on either side of the tooth, where the needle is to enter, with a little carbolic acid, and into the gum is injected a five per cent solution of eucain. When the gum is no longer sensitive, a thin lancet, three-edged and flexible, is carried quickly down from the gum margin to the alveolar process, and holding it closely to the side of the tooth is passed around the tooth, thus severing the gum entirely from it.

Now comes the difficult part of the operation, though it seems simple enough. A small but strong scraper or chisel is used to

scrape away not only the diseased pericementum, but to remove the external layer of the cementum itself, which the microscope shows to be always hypercalcified to the partial or entire obliteration of the lacunae and canaliculi, thus shutting off the circulation. We also remove diseased portion of the alveolar process. The success of the treatment depends on the thoroughness with which this operation is performed. It can not be well done at a first trial—it requires skill and practice. Patients are usually horrified at the description of the operation, but there is usually little pain attending it when the eucaïn is thoroughly applied.

Now the pocket is washed out and *wiped* out with a little cotton wrapped on a stiff broach. Then the mouth is protected with napkins, and sulfuric acid, *full strength*, is carried to the bottom of the pocket. As the blood oozes out, bringing the acid with it, it is wiped away and the root again flooded with the acid. This is repeated many times, the object being to hold the acid in contact with the root long enough to decalcify the surface of the cementum, which thus affords a better attachment for new tissues.

I have never found the acid to injure the enamel enough for that point to be considered, and I pay no attention to it whatever, except to have patient rinse mouth with soda solution after the operation is completed. A mouth-wash of permanganate of potash, quarter grain to ounce, is prescribed to be used hourly until gum heals.

The most stubborn cases are those where we find no tartar whatever. From these we usually find a very free flow of pus, and the operation alone will not always cure it. The patient in whose mouth this particular phase of the disease exists is usually of scrofulous tendency, and my first move with them is to prescribe a dose of Epsom salts each day for three weeks. This simple remedy has a very happy effect on a stubborn carbuncle, and has equally as happy an effect on these stubborn teeth. In addition to the salts sarsaparilla and potassium iodid are to be taken three times a day.

I can not pass over this subject without emphasizing the importance of devitalizing the pulp in all advanced stages. I do not mean by this to wait until the tooth seems ready to drop from its socket. When the pericementum is one-third gone I should devitalize without hesitation. I would also emphasize the importance of cutting off all teeth in the *very* advanced stages, leaving only a little of the tooth above the gum.

The whole tooth obtains its nourishment through the little bit of pericementum that is left, and if the main part of the tooth is cut off the vitality that before sustained the whole tooth is confined in the very little that is left. These roots are to be crowned, and when possible the crowns soldered together for mutual support. I formerly advocated banding these loose teeth together, but I no longer adhere to this practice, but cut such teeth off at once, crown, and solder the crowns together. These, of course, are cemented on only after the roots have been scraped and decalcified.

I would not claim to cure *all* teeth affected with this disease. When they have lost all bony attachment and are held in place only by the gum, it is folly to expect to make them useful. Neither would I advise that teeth be retained which are so loose that they can never be made firm and comfortable again, even though the disease could be eradicated, when the teeth on either side of them are firm and would support a bridge. For instance, if the lower incisors are so loose that they can be pushed about with the tongue, it would be absurd to retain these teeth when they might be extracted, the cuspids cut off and a bridge be inserted, which would be of real biting use to the patient. If these cuspids are not very loose they will support the bridge admirably and grow firm after treatment.

I am often asked if the strain of a bridge inserted on loose teeth will not aggravate the disease and cause loss of the teeth. My experience is that the bridge-work, when constructed with special reference to these loose teeth, tends to tighten them, and does much to eradicate the disease. The teeth are held rigid and are mutually supporting. When you stop the motion of a Riggs'-disease tooth in its socket you have done much for its cure. It is really astonishing to see how firmly a few loose roots will support a bridge, and especially a *large* bridge. Only a short time since a mouth was presented that at first glance seemed hopeless; nearly all the teeth in the lower arch were in the last stages, all seeming to be held in it by merely a ligamentous tissue, and most of them exposed nearly to the apex. On close examination I found the two bicuspid and the cuspid on each side to be fairly firm in their sockets. There was no hope whatever for the molars or incisors, so they were extracted at once, thus leaving three adjoining teeth on either side. These were devitalized, the roots scraped and crowns excised. A full lower bridge was then placed in position. This at first glance may

seem to be a frail support for so large a piece, but a moment's consideration will show us that one side helps support the other, and that the strain of mastication at every point on this bridge is amply sustained by the supports.

Our hardest teeth to manage are the molars. To thoroughly scrape all surfaces of the roots of molars is an operation that not one operator in a thousand accomplishes usually. On the superior molars I have found a bur of the greatest service in breaking up the diseased tissue. When the disease has progressed to a very considerable extent in a lower molar the only effective way to treat that tooth is to devitalize, cut off the crown nearly to the bifurcation of the root, and separate the roots with a drill. This gives us thorough access to the roots, and it is well nigh impossible to thoroughly scrape these roots unless the crown is removed. Of course this is heroic, but if the tooth can be saved no other way, why hesitate to cut off the crown, when otherwise in a short time the entire tooth would have to be extracted?

When the gum heals a separate cap is fitted to each root, these caps soldered together and rounded out to proper shape, cemented on, and an ordinary shell cap fitted over them. All this involves a vast amount of labor for one tooth, but not so much as a three-tooth bridge, which would be the only satisfactory way of replacement should it be extracted. This, of course, should be thoroughly explained to the patient, and a fee charged corresponding to the time consumed.

Oftentimes we find the posterior root has entirely lost its bony attachments, while the anterior root is quite firm. In this case the posterior root is extracted. A cap is fitted to the remaining root like the cap of a Richmond crown, but without the pin. A solid gold lining is now soldered above it and to a gold crown fitting over the tooth, either behind or in front of it. In other words, this is simply a bridge of two teeth, one end supported by this anterior root and the other by an adjoining tooth. This, also, is better than making a bridge of three teeth, as it saves the mutilation of one tooth.

The greatest objection to this work is the amount of time consumed and the great expense attached. Large operations can be done only for patients who can spare a good deal of time and money, and who appreciate the difficulties to be encountered. The time consumed is so long and the difficulties so great that it is hardly in

this respect to be compared with any other dental operation; and for this reason the fees which are necessary to remunerate the dentist for the nervous strain and consumption of time are, compared with most dental operations, simply enormous. Take a tooth which it is necessary to cut off even with the gum and crown. We have first to destroy and extract the pulp. Next we have to operate for the Riggs' disease and treat. Then, after all this, which takes much time, we have to construct and place a crown. Suppose we adopt the charge of leading dentists—twenty-five dollars for each crown. Suppose they charge the same for extracting the pulp and curing the Riggs' disease; we have then a tooth costing fifty dollars. This seems like an immense fee—and it is! But the charge is not large when we consider that in the time consumed in this treatment and insertion of crown these dentists could easily make \$100 filling teeth at their regular rates.—*Headlight, July—Clippings, Sept. 1900.*

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**PERFECT LIGHT FOR OPERATING.** By Dr. C. B. Colson. Read before South Carolina Dental Association, July, 1900. The one single idea I have ever heard on this subject is to get a north light, and that seems to be about all there is extant on the subject. Placing a dental chair before any hole in the wall before a north light is positively not all there is for us to consider in the problem of light, a subject very important and which becomes more serious each year, for it is important for us to preserve our sight in our primer days if we hope to have any when we are older. Without other consideration, a north light is not able to preserve the sight nor will it allow us to perform perfect operations about delicate enamel borders.

There are to-day dental chairs placed before glazed openings in the wall with light from all thirty-two points of the compass. Many are placed without any consideration as to direction of light, some with direct rays all morning, all the afternoon and in the gloaming. Some placed facing within a few feet of a high dead-wall, some before narrow slits for windows atrociously glazed with various colored glasses, some prismatic and displaying all over the dental outfit and patient the split-up rays in beautiful and blinding prismatic colors of the rainbow. It may also be possible that the owners of such placed dental chairs are able to do some very nice dental operations; but with better light and conditions they would do better,

and with their eyesight unimpaired, for I am confident that many are driven to glasses prematurely by defective light causing eye-strain.

How should a dental chair be placed, and how should the light be properly directed to the chair? The north light is preferred, not only by the dentist, but by the artist, photographer and engraver because this light has its source farthest from the sun. It is steady in its intensity, because the floating clouds that pass over in the day pass from south to north and do not shadow or affect this reflected light from the north as they do the direct ray of the sun, and as does a cloud after passing the zenith, will reflect back the sun's ray from its southern, western and southeastern border.

A too bright ray from any source or any sudden change of intensity is very injurious to the eye. The engraver, who does the most perfect eye-work of all the artists, protects his eyes and cheeks against these bright rays by working behind a thin, white tissue-paper screen placed closely before him. The photographer has his studio with many screens and curtains over his skylights, that the artificial optical eye can see perfectly the outlines of each object, and the rays are softened and not split into prismatic light. The painter and the artist have many various schemes for light for their work and the saving of their sight.

The north light is by no means absolutely essential for a dentist; while I admit it is the best to secure, there are many points of the compass where a fine light for all dental purposes can be found, and if the proper care in securing and focusing this light is taken it will answer even better than an unlimited north light.

The true angle of light that reaches a dental chair should be near 45 degrees in front and slightly to the left. I say 45 degrees because the greater volume of light is needed from about that angle. The highest source should not be higher than 22.30 or  $22\frac{1}{2}$  degrees from the zenith. To be more explicit to those who may not comprehend these figures, I will say that the rays of light must not come from overhead, but best from that point of the arc of a circle half way between the angle of 45 degrees and the zenith, which is directly overhead. For operation on the lower teeth this is the light to use, and it would be well if all other light below the angle of 45 degrees should be subdued by a translucent screen of some kind. The reason here explained is, that if the light extends overhead or beyond and down below the angle of the mouth to the window it

will cause a half shadow, whereas if these direct rays are intersected there will be no shadow, made by the upper maxilla and lips while working on the lower, or shadow from the lower lip and jaw while working on the upper teeth.

To those using transoms or skylights this idea is important: Not to extend the transom to the point directly above the chair, but have its highest point stop at the angle known as  $22\frac{1}{2}$  or half-way between the angle of 45 degrees and the zenith.

The lowest source of light should never be below the mouth of the patient and the most satisfactory will be from at least two feet above the horizontal from the patient's mouth. All that part of the window below this line should be screened with some translucent material that will not allow a ray of light to pass through that can catch the eye. The most pleasing color for such a screen, after several experiments, I find to be Indian red. The reason for this is a known fact in physics that light passing through a red medium does not ray off, with refractions to confuse or worry the eye. This screen should be even and smooth, entirely across the window, and have no apertures to allow confusing little rays to pass. The usual custom of placing lace across the window is all wrong and must do harm.

There should never be a light or bright object to the left of chair, as there is an immense injury done by such light to the eye when operating. The light reflected from a bright spittoon or glass of water placed on the left of a chair will cause much eye-strain in doing delicate work, such as trimming marginal borders or placing gold. My cuspidor is dull. I have also found that a light directly back of a chair is also very hurtful and annoying.

I have long experimented as to whether a chair should be placed directly in the center before a window. The result of my experience is, that I have mine slightly to the right, overlapping to the right of window a few inches. The right upright of the window on a line with the patient's cheek, there being no light behind me nor my hands on the right, but with the large volume coming from the left of my hands, therefore does not shadow within the mouth, or my person when I am forced to a position slightly in front.

To perfect my light I have run from the top of the window back over the chair a white Holland shade that reflects down most excellently all light on the chair. Along the sides of the window, which



are recessed, I have placed at acute angles two narrow white Holland shades about eighteen inches wide. These reflect all lateral rays of light, that would otherwise be lost or absorbed, also to the chair. The lower two feet of my window is screened. I am always, even in the darkest cloudy day, in a perfect sheen of light; during certain portions of the day, for about two hours, the sun obliquely gets within the window. To get rid of this severe ray I have another roller-shade that I pull down the entire length of the window and get a most excellent result, in fact, a light that I do my best operating with, as it is simply perfect. There is something in the soft light that passes through a white Holland shade that is most pleasing to the eye. It is the same light that engravers use.

No man's eyes are perfect and the same every day. There are days when many of you feel that your eyes are not at their best. Every now and then of a morning I feel while operating that I am not getting so perfect a view of a margin as I should. I have long since learned the cause: acid stomach—my morning coffee has fermented—and I immediately take an effervescent saline draught, which corrects the sight and stomach. This draught is deep-rock, vichy or a half-teaspoonful of bromo-seltzer.—*Dental Hints.*

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**ANTISEPTIC SURGERY OF THE MOUTH AND FACE.**  
By W. H. G. Logan, D.D.S., Chicago. Read before National Dental Association, July 10, 1900. Let us first take under consideration the steps necessary to gain and maintain an aseptic wound about the face. The part needing surgical interference should be first shaved, then scrubbed with a stiff nail-brush and green soap; then cleansed with a two per cent carbolic acid solution, and lastly bathed freely with absolute alcohol; the patient being previously anesthetized and hair so bandaged that the surgeon can not get his fingers or instruments in contact with the part, and as a result infect the wound. If during the operation the patient vomits, the wound and the field about should at once be covered with gauze, which is not removed until the parts beyond the surgical field have been made aseptic again. Nausea subsiding, the protecting gauze is removed and operation finished. The wound is irrigated with a one per cent carbolic acid solution, and followed by a saturated solution of boracic acid; care is taken that all free pieces of tissue, bits of cotton or tents of gauze are carried away during the process of irri-

gation. Hemorrhage in this field can as a rule be best controlled by torsion. In case this fails ligate with catgut. Never use a powdered styptic to control hemorrhage which occurs in an aseptic wound; it will prevent union in the parts by first intention. The employment of tampons passed from boiling water to the wound will control the hemorrhage you have occasion to treat about the mouth and face very satisfactorily in a majority of cases, with the pleasant after-result of but slight wound inflammation. You may now close the wound by the employment of horsehair or silk and catgut sutures, the catgut only to be employed where the wound is very deep. I do not believe it wise to rely upon buried sutures alone in the treatment of wounds about the face, but always use a few horsehair or silk sutures to insure constant coaptation of the edges. Care must be taken that these sutures are not drawn too tight, for the result will be stitch abscesses.

Let us now pass to the dressing of this aseptic wound of the face. Questions of importance are, Should it be a moist or dry dressing? How secured to the part? and period of time dressing is to be employed? Answers: A dry dressing, and secured to the part by the use of flexible collodion to the dried tissue. This dressing is kept in position from five to twelve days, dependent upon the tension about the wound. To prepare the surgical field for its dressing after the sutures are in position, dry the parts and dust thickly over the sutured line with powdered boracic acid, which is then moistened with alcohol. The powdered boracic acid will, as the alcohol evaporates, practically hermetically seal the exposed edges of our aseptic wound. Now place a few layers of gauze, to be held secure by bandaging where the part will allow. More frequently, however, it will be found necessary to place a fold of absorbent cotton over the layers of gauze, and secure this to the dried tissue by the means of flexible collodion and adhesive plaster strips. The dressing is not to be disturbed without good cause until the stitches are to be removed, which is from fifth to eighth day, after which the surface is again prepared as before and a similar dressing replaced for a period of four days, to allow of closure by granulation of the openings caused by the removal of the sutures. Always employ the dry dressing for all aseptic wounds of the face, for the reason that with a dry dressing you can practically hermetically seal the wound by the procedure spoken of; and because the bac-

teria brought in contact with the wound by the air cannot propagate without moisture.

We shall now pass to the consideration of the probability and possibility of gaining and maintaining such a condition of a surgical wound in the oral cavity after an operation that infection will not take place from the pyogenic bacteria ever present in the fluids of the oral cavity. Although a quarter of a century has elapsed since the value of aseptic and antiseptic methods of general surgery were brought forward, the benefits derived from following these principles in the treatment of external wounds can be found detailed in all text-books of surgery of recent date, while the methods and procedure necessary to gain and maintain a condition in and about a surgical wound of the mouth are dismissed with but a line or so, if even spoken of.

What precautions should be taken to prevent the proliferation of the bacteria which are present in the saliva that bathes the wound constantly? This fluid is ordinarily alkaline or neutral, a perfect medium for the growth of the streptococci and staphylococci, which are the main pus-producing germs found as a rule in this field. Can not the proliferation and activity of these pyogenic germs and their dire effects be best prevented in this field by changing the normal secretions from alkaline, or by producing a condition which will prevent the development of these bacteria? If we can by any harmless method maintain a mild acidity of the fluids which bathe the surgical wound of the mouth without toxic effect, will we not gain asepsis of the oral cavity by the presence of free oxygen upon the wound's surface?

With the hope of changing the alkaline condition to one of acidity, the powdered acetate of potassium was dusted on the surface of wounds made in the mouths of two dogs for experimental work, with the idea that the salt would decompose and thereby leave liberated acetic acid on the wound surface. The wounds thus treated healed without undue inflammation; no infection occurred, and the wounds looked fresh and clean at each application. The wound of dog No. 1 healed in nine days; of dog No. 2 in ten days.

We experimented also on two dogs with similar wounds in the cheek with the bacilli *acidi lacti*. The wounds were dusted with this bacillus for the purpose of having ever present over the wound surface a slight acid secretion. Sugar was used with the bacteria

merely to dilute it. These wounds healed a trifle slower than those upon which the acetate of potassium was employed, but healed in eleven days. The discharge of secretion was rather pronounced, yet no infection took place. The wound was ever fresh and clean at the various applications.

In the next two dogs, under experiment with like wounds, oxychlorin was dusted over the part with the hope of having oxygen liberated constantly on the wound's surface, which would prevent the development of bacteria. The oxychlorin treatment in case No. 1 did not prevent the formation of pus; a slide made during the second day showed the presence of streptococci and staphylococci. Yet the infection lasted only two days, while the wound healed in ten days without the formation of scar-tissue. The second dog's wound, from like treatment, healed in nine days, and showed a beautiful clean surface at all times. The various wounds were treated three times daily.

This experimental work was carried further by again making like wounds in length and depth in the mouths of these dogs and infecting them with a virulent culture of staphylococcus pyogenes aureus. The wounds were not treated until the next day, to allow perfect opportunity for the growth of the bacteria. The wounds under the treatment with oxychlorin showed on the second day of treatment inflammation and a great quantity of pus, while the slide made showed the presence of staphylococci. The inflammation did not cease increasing until the ninth day of treatment had passed, though the pus began to decrease at the end of the seventh day, ceasing in ten days more. The dogs under oxychlorin treatment had to be fed upon a bread and milk diet for twelve days, as a result of the great inflammation in the cheek tissue. In the cases where potassium acetate was employed the inflammation and infection increased for a period of five days only, yet the slides made showed the same infection as in the preceding case. The inflammation and pus secretion practically ended after eleven days; infection controlled in fourteen days.

Reviewing the experiments where the wounds were infected with the same virulent culture of staphylococcus pyogenes aureus, the slides made the following day showed the same infection. These wounds were dusted on the following day with another culture of bacteria, using the bacilli acidi lacti and sugar. Slight inflamma-

tion about the wounds' edges appeared during the fourth day; the afternoon of the fifth day the inflammation began to increase, and continued to increase slowly for three days. When eight days of treatment had passed the inflammation and infection were rapidly subsiding, and on the morning of the tenth day a fresh, clean surface was presented, with but slight oozing of secretions; and slides made on the evening of the eleventh day of the wound that had been dusted with the lactic acid-producing bacillus showed the wound to be free from infection and healing kindly.

The wounds which were infected with the pus-producing germs and treated by oxychlorin, potassium acetate, and the lactic acid-producing bacteria (*bacilli acidi lacti*), showed the following conditions: Under oxychlorin the infection was controlled in seventeen days; pronounced inflammation present fourteen days; pronounced swelling present twelve days; bread and milk diet twelve days. Under potassium acetate infection was controlled in fourteen days; pronounced inflammation present six days; pronounced swelling present four days; soft food as diet four days. Under *bacilli acidi lacti* and sugar infection controlled in eleven days; pronounced inflammation not present; pronounced swelling not present; regular diet throughout. We assume that the reason wounds under treatment with the lactic acid-producing bacillus and acetate of potassium did so well was because we were able by this procedure to create and maintain more constantly over the wound surface a slight acid condition instead of an alkalin or neutral one.

I shall carry this experimental work further on similar grounds, including the treatment of the pus-pockets and suppurative conditions which we find about the roots of teeth, using potassium acetate and the lactic-acid-producing bacillus to see if we can not control more quickly infection in these parts.—*Cosmos*, Oct. 1900.

\* \* \*

### WHEN THE DOCTOR COMES.

BY CHARLES D. CENTER, M.D.

Gran'pap's sick, an' all on us are feelin' purty blue,  
 Fer he's gettin' purty old, an' weak an' feeble too,  
 We're all a'mighty fond on him; the day w'en we can't see  
 Th' ol' man sittin' by the fire—th' Bible on his knee,  
 Is goin' to make us orfle sad. Pap sets an' twirls 'is thumbs,  
 Awaitin' fer th' gate to click w'en the Doctor comes.

Bill sees 'im drawin' up the lane, so Pap he ups and goes  
 Tu tie th' horse, an' blanket him; th' Doctor 'll be mos' froze.  
 Th' Doctor's voice is jest ez strong 'n cheerful ez can be.  
 He sez ez how he thinks th' snow 'll last all thro' Feb'ry,  
 But Pap's voice 's harsh, an' sorter gruff, an' he acks so kinder glum.  
 But he's cheerfuller 'n he was before, fer th' Doctor's come.  
 'En w'en he comes inter th' house Mam takes his coat an' hat,  
 An' puts a cheer up by th' fire th' same place where he sat  
 Th' las' time he was here. An' w'en he's warm he walks  
 Right inter th' spare bed room, an' he an' Gran'pap talks.  
 An' he feels 'is pulse, an' th' rest ov us are keepin' purty mum.  
 But we're jest doggon orfle glad that the Doctor's come.

But he stays in thur so tur'ble long th' figgits gits hold on Mam;  
 An' mebbly me too, fer she boxes me an' tells me not tu slam  
 Th' door. But Gran'mam she jest sits an' a tear runs down 'er face,  
 An' she sez, kinder soft an' slow, "O Lord, show us thy grace;"  
 An' that makes a nut come in my throat an' I feel orfle bum!  
 But things is goin' tu go all right fer the Doctor's come.  
 'En he comes out, an' looks around, an' Mam she kinder braces,  
 An' asks how Gran'pap 'll git along. An' then th' Doctor's  
 Jest th' han'somest ye ever seen! An' he sez "There, don't fret,  
 I shouldn't wonder but Gran'pap 'll bury us all yet."  
 An' then another tear rolls down an' drops on Gran'mam's thumb.  
 But she looks orfle happy now th' Doctor's come.

—*Doctors' Magazine.*

\* \* \*

**ANESTHETICA DOLOROSA.** By E. M. Epstein, M.D. Liebreich seems responsible for this term and the apparent contradiction it involves. He starts out by referring to saponin, which, while it is a local anesthetic, is nevertheless not available in medical practice on account of its painfully irritating qualities. Since Koller discovered the local anesthetic property of cocain in 1884, a number of other substances were recommended for the same property. Liebreich showed by experiments on the lower animals that while many of these substances locally anesthetize, they yet produce pain at the same time, as is the case with saponin.

This surprising fact is most readily demonstrated on animals that have a musculature in their skins. When the skin of a rabbit or guinea-pig is pricked with a needle there ensues a reflex action

which shows itself in a motion of the skin. When a subcutaneous injection is made into such a sensitive skin with an indifferent substance there will ensue no alteration in the reactive capacity. When, however, an effective substance is injected there, a circumscribed space of small diameter becomes insensitive, i. e., a prick with a needle will not result in a contraction of the skin, and even deeper operations can be performed there without the animal's resistance on account of pain. Yet despite this insensibility to external irritation the animal shows an inward subjective feeling of pain by its restlessness.

The eye is peculiarly fitted for testing local anesthesia. It must, however, be kept in mind that there are two kinds of anesthesia in the eye, viz., that of the cornea and that of the conjunctiva; and the reason for this is, that the sensitive nerves of the cornea pass chiefly through the ciliary ganglia. Testing the eye with cocaine it will be seen that the cornea is first anesthetized, and when the drug has produced ischemia the conjunctiva becomes anesthetized also. Substances which produce painful anesthesia make the cornea perfectly insensitive, while the sclerotica and the palpebral conjunctiva become red and inflamed, and the spasmodic closure of the eyelids leaves no doubt but that there is a painful effect produced at the same time.

We therefore see that a local anesthesia can take place contemporaneously with pain. The explanation of this phenomenon may be sought in the assumption that some substances may so affect the sensitive nerve-endings as to set aside their functioning while yet the trunk of these nerves is sensible to the irritation. Liebreich leaves it to further investigations to show how far this assumption is justifiable.

The above considerations have a special therapeutic bearing on antipyrin, which is not only an antipyretic but also an analgesic when subcutaneously given in gouty arthritis, neuralgias, sciatica, hemicrania and in all neuroses of an angiospastic nature. It will also relieve labor-pains, and cannot be given because it will delay parturition. Peripheral pains are relieved only when the injection is made close to the painful spot, but the injection itself is quite painful, and antipyrin is therefore a clear example of a painful anesthetic.

The connection between the chemical constitution of these bodies

and their peculiar effects is undiscernible. Chemical substances that stand very near may act very differently from each other; thus, sodium bromid is effective while potassium bromid is inactive. In the same way are most of the iron salts inactive, while iron chlorid produces in animals the clearest effects of a painful anesthesia. Most of the ethereal oils are very excellent samples of this, and the following are the effective ones: Oils of anise, bergamot, calamus, chamomile, caraway, cloves, cinnamon, cassia, cedarwood, citronella, cumin, eucalyptus, lavender, marjoram, origanum, salvia, sandalwood, sassafras, buckthorn, tansy and menthol. Ineffective are the oils of orange, citron, balsam copaiba, pine, wintergreen, peppermint, rosemary, turpentin, arbor vitæ and zedoary, and tereben and terpen hydrate are also ineffective. Schleich's method of local anesthesia is founded upon these experimental facts.

How various among themselves these painful anesthetics are will be seen from a list of them: Acid tannic, ammonium chlorid, burnt alum, antipyrin, cobra di capello poison, erythrophlein hydrochlorate, extract quassia, [extract sabin, [iron sesquichlorid, iron sulphate, hydrochinon, iron alum, sodium ethyl-sulphate, sodium bromid, lead acetate and resorcin. All when hypodermically introduced will produce local anesthesia with pain—*Alkaloidal Clinic*.

\* \* \*

#### LOCAL TREATMENT OF INTERSTITIAL GINGIVITIS.

By M. H. Fletcher, M.D., Cincinnati. Read before American Med. Assn. June, 1900. Talbot, when treating of interstitial gingivitis, says: "The exciting causes are either constitutional or local, but as a rule are local, or have local action." Regarding his experiments on dogs, he says: "While it is by no means improbable that constitutional factors assist in its early progress in man, still the exciting cause of this disease is tartar." Dr. G. P. Carpenter's experiments tend to establish the law that without a locally exciting cause the disease would not exist as such. The writer is in full accord with these opinions; consequently, from his standpoint, the natural and all-important treatment is to first remove the local cause by cleansing away the deposits found about the teeth, either superficial or deep-seated. This being accomplished, local germicidal and palliative treatment should be adopted and continued until health is the result, or failure established. To accomplish these ends many methods are pursued, but all must attain the same end



before recovery can take place, namely, removal of the exciting cause, for the laws of growth and repair are always the same under the same conditions, and if the cause be removed before it is too late, complete recovery is the result, without further assistance from the physician, and doubtless in many cases in spite of him.

For convenience in classifying we make three arbitrary divisions, as follows: acute, chronic, and sloughing stages of the disease. The writer, after examination, appoints the earliest date possible for beginning the removal of deposits. The majority of these deposits are hard, but many are soft and cheesy, especially in young patients, and even these soft accumulations may produce the incipient or acute stage of the disease. It is the writer's opinion that these early and softer deposits and their consequent irritation produce "the point of least resistance," which, in systemic dyscrasia, may terminate in the utter destruction of parts involved. In this stage the complete removal of these deposits in one or more sittings usually suffices for recovery as to local symptoms; if constitutional treatment is needed it most properly begins with the local work. The younger the patient the oftener and more watchful should be the attention in order to prevent progress of the disease. This treatment may be made three or four times a year, and be continued indefinitely.

In the second or chronic stage we will assume the tissues are diseased or destroyed one-third the distance from the normal gum-line to the apex of the tooth, involving the alveolar process with outer periosteum and gum tissues. In this instance, as in the other, all deposits must be removed and infected bone taken away; this will require from three to ten sittings, from a week to ten days apart.

The sloughing stage may be defined as that wherein so much of the tissues have been lost that the tooth is abnormally loose, indicating that more than half the bony support has disappeared. To induce recovery in this class of cases demands of the practitioner his keenest knowledge of pathology, and his greatest skill in assisting nature to produce what the surgeon would call a "healthy stump." The procedure here is the same as in the previous stages, excepting that it requires much more care and very greatly increased diligence, expecting the time for recovery to be much longer, if indeed it can be accomplished at all. In these cases, like all other pathologic conditions about the body, absolute reliance may be

placed in the laws of repair, for there is a constant and continual effort on the part of nature to maintain the normal, and if we as practitioners are bright enough to remove exciting causes we have done all possible. This idea would include what we call palliative, stimulating, and antiseptic treatment. During this time we should keep constantly in mind the fact that we are merely trying to assist nature to accomplish what the laws of the universe are compelling her to do.

In removing deposits each operator must select and use those instruments best suited to his individuality and the needs of the case, the necessity being to absolutely remove all deposits. It has been found that clean dentin or cementum, without periodontal membrane, is at least non-irritating, while deposits of any kind upon the root surface irritate, and will stimulate a continuous effort on the part of nature to get rid of it. In this instance, however, the effort to get rid of foreign bodies fails of its object on the intruder, but acts on the surrounding tissues and destroys them; hence the pathology of the disease. The complete removal of deposits having been accomplished, the attention should now be directed to the alveolar process, and dead bone or other foreign substance taken away. In actual practice the work necessary to remove deposits usually removes all other irritating substances. Dead tissue may be absorbed, but these deposits never are; hence the necessity of their removal.

If it were possible for all this to be perfectly done at one sitting, and the wound dressed and allowed to remain quiet and in perfect position, as can be done in other parts of the body, then no further attention would be necessary, aside from one or two redressings, several days apart, to maintain antiseptics. A week or ten days is suggested, for the reason that this length of time is usually necessary in the process of healing for new material to be formed. To irritate a wound with treatment every two or three days would seem a hindrance rather than a help to the process of repair, and this seems especially true with the sockets of the teeth.

One of the most impressive, and I might say astonishing things that has happened to the writer was viewed while pursuing embryologic studies in the laboratory. To watch through the microscope the manner in which channels or blood-vessels are formed in embryonic tissue or blood-clot is fascinating beyond measure, leaving an

impression never to be effaced. The blood has many important offices, not the least of which is that of clotting. A minor wound which can fill itself with blood-clot and be kept aseptic will sooner or later be rebuilt with its own kind of tissue, providing, of course, the power of the organ to functionate has not been destroyed; should this function be performed, then a healthy stump, or scar material of the next adjoining tissue, is the natural result. To destroy or even disturb blood-clot in an aseptic wound, within twenty-four or forty-eight hours after it has formed, is simply tearing down or injuring the false or preliminary scaffolding that nature has constructed for the rebuilding of lost tissue, hence the necessity of allowing a wound to remain quiet until sufficient effete matter has accumulated to need removal, which is usually in about a week or ten days.

If this view be accepted, then the typical procedure would be to remove at one sitting all foreign matter in or about the sockets of the teeth. The endurance of the patient might compel this to be confined to one or two teeth; this being accomplished, sterilize the wounds with medicaments, and permit them to fill with blood-clot, allow this clot to remain undisturbed so long as pus does not form. Just previous to, or at the time this stage arrives, the surplus matter should be taken away very carefully, but the new granulations should be most cautiously guarded from violence, if the most satisfactory results are to be obtained.

In actual practice, however, I believe most of us go over much of the field in one sitting, and often to the limit of the patient's strength. If several teeth can be thoroughly done at one time it is well; but the typical way, as stated, is to so do the work that no second scraping or cutting will be necessary, any more than an amputation should need be done the second time. Now, if the patient return in a week or ten days a much improved condition can be seen, and where the work has not been perfectly done there can be seen near the gum margin dark or bright-red spots where deposits have not been removed. If this deposit be deep in the socket, then lack of granulation tissue and pus will be the result, and other attempts must be made until the point of recovery or failure has been reached.

For removing deposits the writer uses such instruments as are illustrated by Talbot, in addition to those styles recommended by

Drs. Henry H. Tompkins and Storer How. I find instruments shaped like Dr. How's fissure chisels of the greatest value in removing deposits from the approximal surface of the roots, for they are thin, strong and efficient, and their varieties in shape will enable one to reach nearly all the approximal surfaces.

The medicaments used for treating the sockets may be any suitable antiseptics and stimulating remedy, and even escharotics may be applied with advantage to destroy tissue and bacteria and produce a healthy aseptic wound, this latter condition being the true fundamental principle of repair. The writer's practice is to use 5 per cent tincture of iodine in 50 per cent alcohol, to which is added as much oil of cinnamon as will be held in solution by the alcohol. After use of the instruments this is injected into every part of the sockets with a hypodermic syringe until the blood starts again, then the patient is discharged for one week or more. This treatment is continued until recovery of all the teeth is complete, or the best stage possible reached, in any event retaining all teeth so long as practicable. Complete recovery of all cases, however, is far from the writer's experience.

Accompanying office treatment, the patient should be required to carry on vigilant attention to the case; satisfactory cooperation is, however, not always easy to obtain. This is so often true that I deliver stereotyped lectures in each case on brushes, picks, dentifrices, with imperative and dogmatic instructions as to their continued use, believing that if the teeth are kept absolutely free from mechanical irritation or deposits, the disease as we now know it is practically out of the question.

A stiff serrated brush of the best quality with the rows widely separated is recommended, with instruction to allow at least one-half of the width of the brush to rub the gums. This not only insures removal of lodgment and deposits about the necks of the teeth, but gives a necessary massage to the gums, keeping them hard and healthy.

Tooth-picks of soft wood are recommended for use between the teeth. These should be thick enough to rub against the teeth on either side, thus preventing accumulations on the approximal surfaces at the necks. Soft pine or other light wood serves best for this purpose, whittled flat and thin at the point, then gradually becoming thick enough to do the work well on both approximal sur-

faces. The hem of a handkerchief or other fabric may be used to advantage when the teeth are not too close together. Whatever plan is adopted, the approximal surfaces at the necks should have exceeding care, for this is the locality first and most frequently attacked by the onset of the disease.

The fact that these localities are inaccessible to the cleansing action of food, tongue and lips, as well as to the brush, and that here the accumulations and disease most often make their start, tends to strengthen the belief that without local irritation the disease would not exist. It is our belief that these particular localities do not receive adequate care, either from the patient or practitioner, principally because they are inaccessible and troublesome to care for; but for this very reason they should have cautious and particular attention, especially in cases predisposed to gingivitis. For this purpose there seems to be nothing better in the patient's hands than the tooth-picks of soft wood.

The matter of leaving injurious splinters in the gums is far-fetched, for if such a thing should by chance occur, the splinter would be discharged from the gums in the same manner as it would from any other part of the body, with but temporary soreness. However, brushes and picks alone fail of their object unless they be accompanied by an efficient powder. A false idea about powders for cleansing the teeth seems always to have prevailed, as it does at the present time, namely, that a powder to cleanse the teeth must be capable of polishing them, and on that idea tooth-powders have been compounded from time immemorial, when the fact is that the natural polish of the teeth is almost universally the best they can have. Abrasives, such as chalk, sea-shells and pumice-stone, not only polish the enamel, but in time cut into the dentin at the necks of the teeth, which both dentists and patients know to their sorrow. The teeth do not need polishing, but simply to be kept free from deposits and lodgments. If this can be accomplished I think no one need fear disease of the gums, which always precedes periodontitis in all its variations.

¶To the end of being able to use a dentifrice *ad libitum*, without danger of abrasion, and one coarse enough to take away all that a powder should remove, the writer has for months past been compounding and prescribing a preparation made from the hard parts of cereals, such as rice and Indian corn. The grit in this powder

does the work most thoroughly, without the least injury or wear, as must be self-evident. Pulverized cereal has been objected to on the ground that it ferments in the mouth. This is wrong, however, for only hydrated starches ferment, and to hydrate it requires boiling, the action of caustic alkalies, or long continued action of bacteria.

With this pulverized cereal is incorporated 25 per cent of soluble ingredients for sterilizing the mouth and neutralizing its acids. These ingredients are sodium borate, potassium chlorate, and potassium nitrate in some cases. The formula mostly used is:

B Pulverized cereal.....	75 parts
Sodium borate.....	18 parts
Potassium chlorate.....	7 parts

Sweeten with saccharin and flavor to taste.

As a dentifrice this cereal tooth-powder does no possible injury, even by excessive use, but is perfectly safe. It may be used freely and often enough to prevent any accumulations whatever on any surface accessible to a good brush. Under the use of this powder the accumulations are not only kept away, but the surface of saw-toothed abrasions at the necks of the teeth become dark, and lose their sensitiveness, showing that the abrasion has ceased. Many confrères in my own city, and some of those present, can testify to the efficiency of this formula, not only as a cleanser, but as a most satisfactory medicinal treatment. When there is no stomatitis or gingivitis, the medicaments tend only to keep the gums hard and the mucous membrane in perfect health.

The fallacy of splinters from tooth-picks, like that false idea of "injury to the gums by hard brushes," has been the negative cause of the loss of innumerable teeth to mankind. These ideas, coupled with the use of something gritty for polishing the teeth, are mistakes that should be stamped out of the profession by its thinking men. The failure to cleanse the teeth, the use of soft brushes and inefficient dentifrices, and the omission of tooth-picks are the great negative causes of the disease under discussion. Civilization may be held accountable for such omissions, and we, as custodians of the organs involved, are directly responsible for much ignorance in prophylaxis.—*Jour. Am. Med. Assn., Aug. 1900.*

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**GOLD CAPSULE IMPLANTATION.** By Clyde S. Payne, D.D.S., San Francisco. Modern surgery is mending wounded hearts following knife thrusts by stitching the edges of the wound.

Injuries to the head are impaired by inserting gold plates to protect the brain, to take the place of that portion of the skull lost. Silver elbows and gold femurs covered by the soft tissues are tolerated by nature and are serviceable. Broken bones of the arm and leg are repaired by uniting the broken ends with a silver splint held in place by small screws. The wounds heal kindly, and the metals become a part of the human anatomy, adding strength and comfort to injured part.

Dentistry is not behind in the advancement made in modern surgery. I can offer you now with certainty an operation that will revolutionize the old methods. It is the implantation or insertion of a gold capsule or root, the exact counterpart of a root extracted, or the exact adaptation of a gold capsule to an opening made in the alveolar process of any size or shape for the attachment of a tooth or any number of teeth on a bridge.

The operation is as follows: Inject the gum where a tooth has been lost with a 2 per cent eucain solution; open gum on lingual side of middle of the alveolar ridge; bring gum forward for restoration and natural effect, and with a small trephine make a well one-half the size of root extracted. The trephine will make an opening the same size from point entered to bottom of well. Enlarge this well at the bottom mesially and distally with a fine gold-finishing bur. Select a gold capsule the exact size of the trephine; fit this into the well; fill this with kneaded soft rubber. Compression of this rubber by hand-pressure will spread or expand the soft pure gold cup into the slight enlargement made at the bottom of the well, and will so perfectly adapt the gold that it is firm and immovable at once.

It gives no pain. The pressure is so slight it is not felt, and is equal in every part of the cavity. The tissues, both bone and gum, heal around it quickly by first intention. This rubber is removed after moulding the gold to the well, and to this gold root a crown or bridge can be firmly attached at leisure. I fill this gold cup or root with gutta-percha and attach a crown by means of a pin nearly large enough to fill the gold root. This may be done by fitting a second cup inside the one planted and fitting a porcelain crown to this second capsule. It can be brought to the margin of the gum and fitted accurately to the upper margin of the porcelain tooth, and so accurately that no gold will be seen.

The operation requires accurate trephines and gold capsules of exact size. Do not imagine that the operation can be performed by instruments in every-day use. Do not try it. It will mean failure to attempt it in a careless manner. Absolute cleanliness and sterilization are necessary for quick healing. Keep the mouth clean after the operation. This operation has its advantages over the old method of implanting natural teeth, as there is no danger of infection or blood-poisoning that might arise from planting a root or a natural tooth from some other person of which you have no history. Another great advantage is, that it is not necessary to tie these capsules in with silk until healing takes place—they are firm from the start.

It is remarkable what the tissue of the mouth and alveolar process will tolerate. Those who attempt this operation will be astonished to see how soon all soreness and tenderness will disappear. The wound heals kindly, and at the end of two weeks the tooth is comfortable and as useful as the natural ones.

The entire success of this operation, aside from the proper anti-septic precautions in the preparation of the socket, depends upon the judgment and accuracy of your adjustment of capsule to cavity cut in the alveolar process and jaw.

Implantation of the natural teeth has been a failure in the hands of many men in the past, due to the fact that they have overlooked the anatomical conditions. The process labially is extremely thin, and in cutting a socket is frequently destroyed, so there is nothing remaining but gum covering root of implanted tooth. This forms a pocket for infection, the formation of pus and ultimate failure of the operation. After extraction of a natural tooth or root, and the usual shrinkage of the alveolar process following, a full-sized normal root can not be implanted; therefore it is necessary to implant a small root or gold capsule one-half the size of natural root, in order to have it completely surrounded by a bony tissue.

The capsules are made of 32-gauge pure gold in the following manner: Use an ordinary Morrison draw plate; reduce a small gold disk in cartridge form to the smallest hole (the capsule will yet be too large in diameter); continue reduction of capsule through the Kienzle wire gauge draw plate to No. 28 for the centrals and laterals. I had mandrels made for every other hole, and it will be necessary for you to do the same. The No. 28 hole you will require for



centrals and laterals. For bicuspid, or where you have abundant tissue, you can use a slightly larger capsule, dependent upon amount of hard tissue, after extraction of tooth and the absorption that follows.

I recommend two sizes of trephines, Nos. 2 and 4 Walker-Younger, and Alport's C and D bone burs. The D bur will cut down the spicula of bone at the bottom of the well after using a trephine, and the C bur will enlarge the opening at the bottom mesially and distally to receive the expanded cap. A heavy lance should be used, and with this I open gum and raise periosteum, bringing it forward before introducing the trephine to secure restoration and a bone deposit at cervical margin.—*Pacific Dental Gazette*, Oct. 1900.

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UNUSUAL CASE OF HEMORRHAGE. By Chas. A. Clark, L.D.S., England. Cases of hemorrhage after tooth extraction are in the experience of every dental surgeon, but a case where a tooth had failed to be extracted is somewhat unique. Miss D—, aged about 20, came to have an abscessed central removed under gas, and if possible also the bicuspid and first molar stumps—upper right. The central was rather firmer than I expected, but after extracting it I attempted to extract the molar stumps; but as they squeezed up on closing the forceps, and as also the patient was recovering from the gas, I desisted, she leaving in a few minutes. This was about 12:30. At 7 o'clock in the evening she returned complaining of bleeding. On examining the mouth I found she was bleeding profusely from the gums of the molar stumps that had not been extracted. Ice had been held in the mouth all day but had failed to check the bleeding, and in fact it was so profuse that while searching for the bleeding part the patient's head had to be tilted on one side to allow the blood to flow out, as otherwise it filled her mouth and gave me no time for examination. On removing the clot I found that the bleeding was apparently from the palatal gum, but being unable to check it for a more sure examination, and there being no depth of socket to plug, I pressed on a large piece of wool soaked with a saturated solution of tannic acid in absolute alcohol, and held in *in situ* for a few minutes, pressing firmly. This stopped the bleeding, and placing a thick pad of lint on the wool for the patient to bite on, I sent her away until morning, giving the usual directions about ice and the avoidance of warm food, etc.

On returning in the morning the patient said there had been no recurrence of the bleeding, and I very carefully removed the piece of wool with the tannic acid solution, which disclosed gum of about a quarter of an inch in depth and which had bled—as I had thought—from the entire surface, there being no unusual blood-vessel present. I have since found from the medical man who attends the family that she is a bleeder. I have *not* extracted those molar stumps.

Does hemorrhage after extraction take place more often after gas administration? I think so.—*Jour. Brit. Dent. Assn.*, Nov. 1900.

**TRANSPORTATION OF DISEASE BY DUST.**—Harold C. Ernst says that of the irritant action of dust upon the respiratory apparatus there can be no doubt, as is illustrated by the photomicrographs of the dust from the streets, which show a variety of minute jagged particles of mineral and vegetable origin. This material also carries living forms of the higher bacteria. E. Germano has thoroughly studied the subject of the possibility of the transmission of pathogenic bacteria by dust. He concludes that it is a settled matter that they must be dry to render their transportation by dust at all probable. The bacteria of typhoid, cholera, plague, influenza and gonorrhea resist drying for so long a time that their chances of transmission are slight. The streptococci, pneumococci, and diphtheria bacillus may be carried by dust, as they show great variation in their resistance to drying. The diplococcus intracellularis, the staphylococcus of suppuration, and the bacillus of tuberculosis are still more resistant to drying, and the spore-producers—anthrax, malignant edema, tetanus, etc.—may resist drying for an indefinite period. The conclusion would seem to be that the danger from dust is greater from its direct irritant qualities than from the chance of transportation of any infectious disease.—*Boston Med. and Surg. Jour.*

**OXYGEN AND EXERCISE.**—Dr. A. Foxwell of London states that the first result of exercise is to increase the rate and depth of respiration. The respiratory quotient—that is, the amount of carbonic acid divided by the oxygen—is not increased with exercise, as the tissues are as rich, if not richer, as when at rest. This necessitates an increase in the amount of oxygen absorbed, since a man gives off more carbonic acid when undergoing exertion than when at rest. It is a strange fact that arm-work per unit of work done requires a greater absorption of oxygen than climbing; while climbing takes more than walking on the level. If the amount of oxygen absorbed during sleep is 100 grams per minute, then there would be absorbed 500 grams by a man walking at three miles per hour on the level, and 5,000 grams in climbing a yard high, and in turning a wheel with the arm 7,000 grams for an equivalent amount of kilogram meters. The enormous increase in the amount of oxygen absorbed and carbonic acid given out must necessarily act to strain the organs, and Dr. Foxwell believes that the lungs and the right ventricle of the heart bear the brunt of the extra labor involved in short strenuous exertions.

## Letters.

### MERITS OF A SEAMLESS CROWN.

*To the Editor of the Digest,*

CHICAGO, Dec. 15, 1900.

DEAR DOCTOR:—I can not understand why the seamless crown, with all its beauty, artistic outline and contour, should be called a fad when everything is in its favor, for besides the above it can be fitted to the root with minimum discomfort to the patient, and certainly any means whereby the burden of an operation is lessened to all concerned is at least commendable.

During the discussion of a paper on "Constructing a Matrix for Seamless Crowns," read by Dr. J. H. Prothero before the Chicago Odontographic Society, Nov. 19, this form of crown met with overwhelming opposition. Many arguments were used against it; one man said it was too weak at the very point where it should be strongest; another found it necessary at times to grind away the entire cusp after the crown had been finished; another thought he could do as well with the contouring pliers, and to prove this statement Dr. Goslee exhibited a crown made by himself by the "sectional method," with cusps most beautifully carved. I failed to detect, however, any of the artistic results produced by the seamless system.

The above are poor excuses for condemning the idea. If properly handled in swedging the gold is but little thinner at the largest diameter of crown than it is at the neck. The man who finds it necessary to grind away an entire cusp after the crown has been finished possesses no advantage with any other method, for surely no one would think of putting on a crown without first reenforcing the cusps. Again, the fact that in a few simple cases one can do as well with contouring pliers can not justly be used as an argument against the seamless method, for any one can achieve some kind of a contour on a crown with pliers.

The seamless crown, however, gives us an absolutely accurate fit at the neck, not at one point of contact only, but for a sixteenth of an inch more or less, as the case may require, and a contour corresponding with the adjoining natural teeth in all cases. These results may be obtained with little discomfort to our patient, as the con-

touring is all done in plaster on the model. If, however, the above results are expected without some effort, skill and patience on the part of operator, he will undoubtedly find at least two reasons for condemning the system—first, because he can do as well or better with contouring pliers, and second, because he will find the gold too thin in places, in fact, so thin that it will break through while swedging. Those who condemn the method very probably do so because they don't know how to use it.

In this same discussion I remarked that beautiful results might be obtained by using the seamless method for bicuspid, where you cut the front out afterward and solder or otherwise put in a porcelain facing. A few days later there appeared in the November DIGEST a statement by Dr. Goslee, who reported the meeting for this journal, that I advocated such a crown, "supposedly because there would be no joint to come unsoldered." He may guess once more, for there was not a word said about joints coming unsoldered. Dr. Goslee further says that I would be more in line with progressive prosthesis if I used porcelain for such teeth. Now I fully recognize the beauty of porcelain and use it very often, but if his idea of progressive prosthesis is based upon the indiscriminate use of porcelain in such cases, I would rather not be in line.

Yours truly,

H. C. WAACK.

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### BALTIMORE LETTER.

BALTIMORE, Sunday afternoon, Dec. 16, 1900.

*Dear Digest:*

You have told me just how to mail this letter and when; but though I am agreeably disposed, I find it is not quite so easy to get it off. If you really want to be obliging you might omit a few of your small directions, and throw a block or some obstruction in old Father Time's machinery, or do something to check the mad gait of this gasping and dying century. Not that there is much to be gained now by a few moments saved of the little that is left, but it would at least add to our peace of mind not to be bumped square up against a brand new cycle in such a dizzy whirl.

We reached home this morning at five o'clock from Washington, where together with visitors from Chicago, Pittsburg, Philadelphia, New Jersey and North Carolina, the members of the

Maryland State Association were most delightfully entertained by the Washington City Dental Society. We had a twelve o'clock luncheon, a visit to the Army and Navy Medical Museum and Library, a six o'clock meeting with an interesting paper by the always entertaining Dr. Hugo, and wound up with a banquet that was a corker. Good fellowship seemed to be on the rampage and happiness beamed from every face. The speakers were at home and not distressed. Some good stories were told and not an untoward circumstance occurred.

An interesting feature was the presence of Congressman Otey of Virginia, who has, in session and out, contended for the appointment of dentists in the army, and whose efforts have finally been rewarded by the passage through the House of the Army Bill, with an amendment arranging for the appointment of thirty dentists in the army. There seems little doubt of the passage of this measure by the Senate and of its finally becoming a law.

Some dissatisfaction has been expressed with the measure, and certainly it falls far short of securing for dentistry all that was intended by the original measure, or as much as has been secured by the veterinary surgeons. It seems, however, that the latter measure has little chance of final passage, while the dental measure and those having it in charge have made friends everywhere, especially in the department under whose control its provisions will be carried out. Mr. Otey well said that "He who pitches his voice too high will not be able to finish the song." Gradual improvement and increase in numbers will certainly follow, as the dentist will inevitably make his services essential to the American soldier. All we want is a chance to demonstrate to those interested in the improvement of the service the usefulness and helpfulness in surgery and in the more restricted practice of our specialty. The dental surgeon then will be a fixture, not only in the army but in all other branches of government service.

It seems a little like there might be a scramble for the three positions of examiners. Candidates are looming up everywhere. Above all, we hope it will not degenerate into a political contest. The Surgeon General has repeatedly said that professional endorsements alone were to be considered. If he can only stick to that we may expect to get clean and efficient men.

Dr. Brophy of your village is spending to-day in our city. Dr.

Waters has him out behind his side-wheeler and it may be expected that the doctors will get a fast ride. For the honor of our city let us hope so, for Dr. Brophy is himself an owner of blooded stock.

Oriole has an invite to go out your way in the near future, and if he comes he'll stop in and look your devil-shop over.

Sorry to hear Dr. J. N. has been sick. Give him our love.

Yours always,

ORIOLE.

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## NEW YORK LETTER.

NEW YORK, Dec. 15, 1900.

*To the Editor of the Digest,*

**MR. EDITOR:**—We know one dentist who went to Europe this summer, had a good time, saw a great deal, and believes he acquired something which will pay the expense of his four months absence. In Berlin he called on Dr. Miller, but unfortunately found him in rather poor health. Next he visited Dr. Stahl, who has given considerable attention to attachment splints of metal, following somewhat Dr. Michaelis' methods in Paris. When reaching Dresden our friend called upon Dr. Jenkins, but he was in Paris. However, his assistant, Dr. McBride, and his German woman assistant, an expert in ceramics, showed the visitor everything there was to be seen and gave him all the information possible. In consequence he has returned home full of enthusiasm over the porcelain inlay art, and judging from the specimens brought back we must say that it is an art of high degree. The profession probably does not realize to what perfection this work has been brought by those skillful in it.

It is stated that the French dentists are not waiting with open arms for Americans to come over and settle, and they do not disguise the fact. They have, however, some good examples of American dentists who are already settled in Paris. Legislation in America lays us open to a more valid charge of selfishness than can be brought against the native practitioners in foreign countries. Over here we do not allow a dentist to move from one state to another without taking examination and overcoming a lot of nonsensical red tape.

We are pleased to record two notable weddings in the fra-

ternity, and both contracting parties are reputed to have captured a fortune. The daughter of Dr. Deane has married a reputed millionaire; and the son of Dr. E. Parmly Brown has carried off an heiress. She may not have quite a million, but close to it—anyway, enough if they are economical. This son was in the Cuban war and got his epaulets.

Many New York dentists have taken to horseback riding. Dr. A. L. Northrup may often be seen on his fine Kentuckian. Not many years ago the doctor was threatened with pulmonary trouble, but now at sixty-four he is the picture of health, and really seems too big and tall for his office. Drs. Parker and Francis are also enthusiastic horsemen. Dr. C. M. Richmond rides an automobile, but many others still prefer the wheel.

A few evenings ago we met Dr. John B. Rich. He was walking rapidly, although nearly ninety.

The Million \$ Dental Co. is in full operation in the St. James Building, with fine rooms and all the modern improvements. Some fear that "this move will knock dental practice silly," but we trust not. This is a big world. It is reported that one of Baltimore's most prominent practitioners is in the enterprise. Where is Oriole?

Dr. J. W. Simpson, one of the Galveston sufferers, has lately located in this city, and seems already to have found patients. We think he will be a valuable acquisition to our professional gatherings.

Who says we are not in an age of advance? An M. D. read a paper before the November meeting of the Odontological Society on "Reflex Aural Symptoms Dependent upon Dental Caries," and addressed those present as "Odontologists." In the discussion following the article one distinguished member gave pathetic vent to his feelings. He acknowledged the honor and congratulated the society upon being truly appreciated in the minds of such a learned body as the profession of medicine. He thought it should be a comfort to us, because some who had once occupied these halls of learning, where only advanced science had a true presentation, were betaking themselves into new and experimental fields, showing a decided tendency to wander away from the original flock. He closed by relating that one of our former prominent members had virtually abandoned his allegiance and asso-

ciations; had dropped his D. D. S., and turned his entire attention to the calling of a *stomach doctor*. Recently we noticed a professional looking person measuring a door-plate, and on it we read "Dr. ———, Stomatopathist." Perhaps this is the one to whom the aforesaid member alluded.

New Jersey has again furnished a sensation. Some members of the state examining board accused Dr. Meeker of incompetency, and of unfairness in marking papers, and preferred charges against him before the governor, which were dismissed. The October meeting of the Central Dental Association was a large one, as the members wished to congratulate Dr. Meeker on his victory over his accusers. Two sets of resolutions were passed, and Dr. Meeker can well be proud of the support and sympathy accorded him by his professional confreres. It seems a pity, however, that the profession in New Jersey, which is notably wide awake and progressive, should have so many of these unfortunate occurrences. We would suggest that the business end of some of the hornets be removed, so that a Meeker spirit may prevail in the state.

Let us close by saying, with Tiny Tim—"A Merry Christmas to us all, and God bless us every one."

Cordially,

NEW YORK.

**TUBERCULOSIS OF THE TESTICLE**, especially in children, may have as its primary source of infection carious teeth with ulceration of the gums about them, and defects in the mucous membrane of the nose, mouth, tonsils and middle ear, with subsequent infection of the cervical glands.—J. B. Murphy in *Jour. A. M. A.*

**ANATOMY OF THE ACCESSORY CAVITIES OF THE NOSE**.—Dr. Gustav Bruhl concludes from his studies that infection of the antrum of Highmore can take place only if the antrum is large or of medium size. To open the antrum through the cuspid fossa, if the antrum is small, is successful only if the opening is made close to the infraorbital ridge. Berlin. Klin. Woch.—*Jour. A. M. A.*

**ELECTRICITY FOR GERMS**.—Dr. Zierler of Berlin has published the fact that he has practically applied an important discovery made at the Hygienic Institute of Wurzburg University, and succeeded in destroying bacteria in the teeth and jaws of living people, by the electric current. The process, when correctly applied, is absolutely painless. A needle electrode is introduced into the carious roots of the teeth and the other electrode is applied on the gums. He claims the teeth which were formerly considered lost can be saved by the application of this invention.—*Pacific Med. Jour.*



# The Dental Digest.

PUBLISHED THE TWENTIETH DAY OF EVERY MONTH

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Where All Communications Should be Addressed.

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## Editorial.

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### DECISION OF INTEREST TO NEW JERSEY MEMBERS.

Our readers will remember that in the July issue of the DIGEST we gave the names of several members of the Protective Association in New Jersey who had been sued by the Crown Co., and further stated that organization was trying in those cases, as they had in others, to compel the men sued to bring their books into court and have an examination of them before a Master in Chancery, on the plea that the Crown Co. wished to know the amount of damage to which they would be entitled should they succeed in obtaining a judgment against the defendant. The Crown Company's real motive in thus compelling members to submit to this most humiliating and annoying proceeding was simply and solely to compel them to settle, rather than be put to all the trouble involved. In passing, we might state that there has not been a single instance in all this litigation where the Crown Co. have shown any desire to test the validity of their patent claims, but in all cases they have resorted to unusual and sometimes questionable methods, such as would most annoy the dentists sued, hoping in this way to stampede the Association and to secure moneyed settlements. The Protective Association has, however, succeeded in blocking all these attempts, the most notable one being in Massachusetts, where, although the Crown Co. started out to terrify the whole state into paying them tribute, and even went so far as to put United States marshals into prominent dentists' offices, the Association checkmated every move, and finally had all the cases dismissed, as was stated in our August issue.

This attempt on the part of the Crown Co. to have the men who were sued bring their books into court was first tried in Massachusetts, but the Court of Appeals refused to grant such an order and pronounced the procedure illegal. The same move

was made in New York, and while Judge Lacombe at first granted their petition, he subsequently gave the Association's attorney the privilege of arguing against the motion. When the same tactics were tried in New Jersey, Mr. Offield fought the move and refused to have his clients appear in court, as was stated in the August DIGEST. The attorneys of the Crown Co. failed to obtain a contrary order, so the matter was postponed until the October session of court. On October 9 an attempt was made to secure a fine and commitment for contempt of court of Dr. Joseph S. Vinson of Newark, one of the members sued, for refusal to attend upon preliminary examination of himself as a witness under an order obtained by the Crown Co., but Federal Judge Kirkpatrick who heard the case took it under advisement. Now the judge, upon our motion and upon our argument made and briefs filed in behalf of Dr. Vinson, has vacated and annulled this order, and decided that no defendant dentist in the state of New Jersey can be compelled to so attend and submit himself and his books to examination. This is a great victory for the Association, and should ease the minds of the New Jersey members, as it relieves every defendant in the various suits pending, and in those which may hereafter be brought, from being forced to stand this disagreeable, expensive and annoying proceeding.

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The certificates of membership in the Association have now been issued to every member who has paid his assessment. Any one in good standing who has not received one of these documents will kindly notify us at once, so that the oversight may be rectified. We are gratified to state that the certificate has called forth nothing but praise, and that nearly all the members are not only pleased to receive it, but are proud to hang it in their offices. Furthermore, it will evidently be the means of inducing some "almost persuaded" dentists to join our organization, as several new applications have come in since the certificates were mailed.

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We promised last month to give our readers some more facts in the examination which we had secured of Dr. Sheffield, president of the Crown Co., and his brother-in-law, Kyle, the so-called defendant. Further proceedings were delayed, however, owing to a press of other business in the courts, but the matter

will be brought up again very soon, and our readers will be kept informed of all that transpires.

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### READER OR ADVERTISER—WHICH ?

One of the most deplorable features of the dental trust is the fact that nearly all the journals of the profession are controlled by it. The supply houses are operated under different names, and the several publications are ostensibly edited and owned by different individuals and firms, but the real ownership is vested in the combine. Of course these publications deny that they are controlled by a trust, they even deny the existence of such a thing. However, it is not our purpose in this article to explain the operations of the corporation which endeavors to control the traffic in dental supplies. Its evil influence has been many times demonstrated to every dentist who has been compelled to pay exorbitant prices. We desire at this time to direct the attention of the profession to the importance of having an independent press. If the trust were to succeed in purchasing every dental journal, the dentists would not only be robbed, but would be kept in ignorance of the fact that they were being robbed. Therefore it is of absolutely paramount importance that they shall continue to have some independent means of learning what may be termed the news of the profession.

At the present time there are about twenty journals published in the United States, professedly in the interests of the science and practice of dentistry, and all but two or three of them are controlled by the trust; that is, they are either run by some combination dental supply house, or else carry trust advertisements. We maintain that no journal which is under any obligation whatever to this combine can be independent. There is one journal, not conducted by a dental supply house, which was started to be the independent and representative journal of the profession. However, those having it in charge have seen fit to accept trust advertisements, so the publication has certainly lost the right to call itself "Independent in character and free in spirit."

The great majority of these twenty journals are undoubtedly dependent upon the trust's patronage for very existence. In fact, we know of one in Chicago which we feel safe in saying does not circulate eight hundred copies per month, exchanges and all included,

so it can readily be seen that its subscription list does not furnish the revenue which enables it to appear each month. Relatively the same conditions probably prevail with most of the others. Our readers may ask wherein this concerns them, and we shall be happy to answer this question. The editors of these papers which are dependent upon the combine for support take their cue for every act from the few men who have subsidized them with an advertisement. They sneeze only when their benefactors take snuff. Their bonds are so tightly drawn that it is impossible for them to express an opinion upon any subject under heaven except the superlative merits of the wares their patrons offer. Such journals content themselves with saying safe things, and they appeal to the readers about as much as a last year's almanac would. They print the alphabet and the multiplication table, and predict frost in January and flowers in June, but they were never known to offend an advertiser by printing news. It is therefore manifest that since these publications are edited solely in the interests of their trust advertisers, to the detriment of the readers, they should not expect nor receive the support of the latter.

Far be it from us to belittle the value of advertising, for no paper can exist without it, but the most important factor is the reader, for without readers, of what possible use is a publication to an advertiser? This is why the editor should print without fear or favor all the news he can obtain, for in him is vested the desire of thousands who wish to know. If a journal is made so newsy and entertaining that subscribers are secured in large numbers, the advertising will follow naturally. As proof of this proposition, we would state that the last issue of the DIGEST contained fifteen pages more of advertisements than was carried by its closest competitor, excepting in both instances the advertisements inserted by the respective publishers. After all, the paper that affects a lofty scorn of the advertiser and fences him off its reading pages is really giving him the best value for his money. It offers him less slavish adulation, but presents his card to thousands of prospective purchasers. The modern reader is intelligent and spurns the journal that is plainly not conducted for his benefit.

This is the season when members of the profession are choosing their reading matter for the next year, so we trust an editorial along this line will be pardonable. In view of the facts given above, are

we not justified in asking every dentist to make his fealty to the DIGEST a personal matter? The issue is a vital one to the profession. Fortunately, your editor is engaged in the active practice of dentistry, and is therefore not dependent upon this journal for support. If he were, the DIGEST could perhaps not be so fearless in tone. We think it may be said without conceit, that if the publication of this journal were to be discontinued the loss would fall most heavily upon the profession. During the past six years we have given our time and money, and such ability as we possess, to the establishment of a journal that should represent the profession, and we have dared and shall continue to dare to tell the truth about the dental trust or any other abuse to which the profession is subjected. The DIGEST does not publish a single trust advertisement, and is warring against it and your other enemies. Furthermore, we print the news of the profession in succinct form, and avoid the prosy and tedious matter that so frequently fills the pages of dental publications. Since we have shown that the DIGEST is run simply and solely for its subscribers and not for its advertisers, may we not count upon your active and moral support? Thanking one and all for past favors, we would extend the compliments of the season to the profession at large, and especially to our subscribers.

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## Notices.

### NOTICE CONCERNING DATE OF PUBLICATION AND INDEX.

Beginning with January, 1901, the DIGEST will be published from the 15th to the 20th of each month, instead of on the last day, as heretofore. Advertisers and contributors please note. Index for 1900 with January issue.

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### DISTRICT OF COLUMBIA DENTAL SOCIETY.

At the regular monthly meeting of this society, held Nov. 20, 1900, the following officers were elected for the ensuing year: Pres., H. J. Allen; V. P., J. H. London; Rec. Sec., Williams Donnally; Cor. Sec., L. F. Davis; Treas., M. F. Finley, Librarian, H. B. Noble; Essayist, W. N. Cogan.

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### CHICAGO COLLEGE ALUMNI CLINIC.

The eighth annual clinic of the Chicago College of Dental Surgery will be held at the College building Wednesday, Jan. 23, 1901. A large attendance is expected, and a cordial invitation is extended for members of the profession to be present. The program for the clinics will be announced later.

L. S. TENNEY, Pres.

H. J. GOSLEE, Chairman Ex. Com., 580 W. Madison St., Chicago.

## OHIO STATE DENTAL SOCIETY.

At the thirty-fifth annual meeting of this society, held at Columbus, Dec. 4-6, 1900, the following officers were elected for the ensuing year: Pres., H. F. Harvey; 1st V. P., Otto Arnold; 2d V. P., J. B. Beauman; Sec., S. D. Ruggles; Treas., C. I. Keely, \_\_\_\_\_ S. D. RUGGLES, Sec.

## WISCONSIN STATE BOARD OF DENTAL EXAMINERS.

The next meeting of this organization, for examination of candidates, will be held at the Hotel Pfister, Milwaukee, Tuesday, Jan. 15, 1901, at 9 a. m. All examinations are conducted in English, in writing. A practical demonstration is also required, and applicants must furnish their own instruments and patients.

W. H. CARSON, Sec., Goldsmith Bldg., Milwaukee.

## LATEST DENTAL PATENTS.

- 662,387. Dental head rest, V. W. Baker, Plainfield, N. J.
- 662,533. Dental appliance, D. O. M. LeCron, St. Louis.
- 663,068. Dental elevator, X. Dodel, San Francisco.
- 663,086. Dental hand-piece, H. B. Mitchell, Canton, O.
- 663,143. Mechanism for dental chairs, B. M. Wilkerson, Baltimore, assignor to S. S. White Co.
- 663,178. Dental dam, N. Kuns, Santa Monica, Cal.
- 663,507. Rubber-dam holder, C. W. Meguiar, Franklin, Ky.

## TRADE-MARKS.

- 35,571. Dental composition, C. Day, London, Eng.

RESOLUTIONS PASSED BY CENTRAL DENTAL ASSOCIATION OF  
NORTHERN NEW JERSEY.

Whereas: Since our last meeting certain charges have been preferred against Dr. Chas. A. Meeker, one of the founders of this society, and who has continually been an officer of it for twenty-one years, during which time he has served this society with distinguished faithfulness; and

Whereas: Said charges were made against him by G. E. Adams, G. Carleton Brown, F. C. Barlow and E. M. Beesley, his fellow-members of the Dental Commission of the State of New Jersey, all of whom are likewise members of this society and subject to its discipline; and

Whereas: Said charges, filed with the governor of this state, accuse Dr. Meeker of wrong-doing and incompetency, in that they allege that in a specific case he did award to a candidate twenty votes, whereas his accusers, after considering in a secret meeting the same papers, found that but six questions had been correctly answered out of a total of thirty, so that the candidate should have received but six votes; and

Whereas: At a public trial before the governor Dr. F. C. Barlow, one of the accusing members of the Commission, under oath did testify that he had in the past examined under two of Dr. Meeker's subjects, so that he, Dr. Barlow, did feel competent to judge of the papers in dispute, and that he

had examined the papers, and had found the candidate had correctly answered but six questions; and

Whereas: Dr. F. C. Barlow still being under oath, on cross-examination was made to express his opinion separately of each of the thirty answers in the disputed papers, with the result that he admitted that twenty-two of these answers were wholly or in part correct, thus contradicting his affirmative testimony that but six were correct; and

Whereas: The governor has rightfully dismissed the charges and exonerated Dr. Meeker, be it

Resolved, That it is the opinion of this society that our honored member, Dr. Meeker, has been the victim of an unjustifiable attack, and that he is entitled to and is hereby tendered the hearty congratulations of us, his fellow members, upon his refutation of the accusations made against him. And further be it

Resolved, That these resolutions be spread upon the minutes, and published in the dental journals, as well as in the public press of this state, wherein the charges against Dr. Meeker have appeared, to the just end that he be fully exonerated.

Signed—F. Edsall Riley, Wm. L. Fish, H. S. Sutphen, Frank G. Gregory, C. W. F. Holbrook, C. S. Stockton, J. S. Vinson, John A. Voorhees, Lloyd G. Morgan, William P. Richards, W. H. Pruden, Nelson M. Chitterling, Harvey Iredell, C. E. C. Smith, R. M. Sanger, Henry S. Hull, J. L. Crater, F. L. Hindle.

N. M. CHITTERLING, Sec'y.

#### CHICAGO DENTAL SOCIETY.

The regular monthly meeting was held Tuesday eve., Dec. 4, 1900 at the new quarters in Schiller Theatre Bld'g., with the diminutive president, Geo. W. Cook, in the chair. The attendance, while large, was not up to expectations, in consideration of the program. Preceding the regular work, Dr. A. W. Harlan took occasion to present to the profession for the first time the successful results of his latest experimental work in the line of "pulp-digestion." The process of removing the contents of pulp-canals after devitalization thoroughly and effectively, no matter how small or attenuated they may be, consists of dissolving or digesting them by means of a preparation containing papain gr. i, glycerin gtt. i, and hydrochloric acid gtt. i; and does away entirely with the usual necessary instrumentation. The modus operandi is as follows: After the devitalizing agent has been applied and allowed to remain in the tooth for the usual length of time, the pulp-chamber is freely opened and the bulbous portion of pulp removed, then a small pledget of cotton is saturated with the "digestor" and placed in the tooth, sealed there hermetically, and the patient dismissed for from one to three weeks. When the cavity is again opened nothing remains of the pulp but a somewhat gelatinous mass, which is easily removed with the chip-blower or compressed-air syringe.

The proposition was well received, and since its practicability has been thoroughly tested, the profession should accord to its advocate due credit. If the method will do what is claimed, it will no doubt aid very materially

in the problem of perfect root-filling; for if but slight instrumentation be observed in simply enlarging the opening into canals, that free access thereto may be readily gained, it will overcome some difficulties in precluding the possibility of leaving fibres of tissue clinging to the walls of tortuous canals, or of packing them down into and thus clogging up the apices of the mesial and buccal roots of molars (with the attending results), where its use is mostly indicated.

The paper of the evening, "The Relative Duties of the National Association of Dental Examiners, and the National Association of Dental Faculties," by W. C. Barrett of Buffalo, was then read, and without being paradoxical was both eminently interesting and extremely disappointing. Interesting because of the terse, forceful manner in which the subject was treated by the essayist, and disappointing because of the lack of discussion. Dr. Barrett can blame only himself, however, for not having had what the society and all interested in the subject particularly desired, and what his paper deserved—a good, intelligent discussion of a most perplexing question. It is too bad that after having had so long to prepare the paper he was not able to finish it in time to send a copy in the whole, or even in the abstract, to those who, because of their fitness, had been selected to open the discussion, that they at least might have been prepared to do justice to the occasion. Not that any one would necessarily take issue with his ideas and views, but because of the increased value enthusiastic, well-informed debate always lends to the consideration of any topic of importance; and because of the injustice done the paper, those selected to open the discussion, and the members of the society, to whom an announcement had been sent that men prominent in the ranks of the profession would be present and participate. Dr. Ottolengui was not present, did not intend to be, and did not know that the paper was to be read at that time, though he had been asked to send his written discussion to be read, and had consented to do so, subject, of course, to his receiving a copy in time; and Dr. Crouse, although sick, would have attended had he been able to secure any idea of the substance of the paper, that he might be prepared to properly discuss it.

The paper itself was forceful and aggressive, and the arguments, while made from the standpoint of a college teacher, were strong and reasonable. He began with a criticism of so many of the older members of the profession for viewing the schools with prejudiced eyes because of the competition they were creating, and for looking at college teachers through the same eyes, because some few were perhaps selfish egotists. As a whole, however, he averred that they averaged with the rest, that fortunately circumstances forced them to remain active members of the profession; and that he knew of no college man, no matter how much ability he possessed, who had made a decent livelihood out of college work alone, and but few if any ever have.

To substantiate his criticism of those who were so narrow-minded as to look with prejudice upon the colleges because of the increased competition they necessarily created in the fulfillment of their function, Dr. Barrett thus briefly reviewed the history of dentistry. Shortly after the Revolutionary War the country with a population of 8,000,000 had ten (10) dentists,



and at the present time with a population of 75,000,000 we had in round numbers about 25,000 dentists; a ratio of one hundred times greater than a century ago, and yet it was safe to predict that the 25,000 to-day were far busier than the 10 were then. That this increase was due to the colleges he acknowledged, yet contended that if they have multiplied the number of practitioners they have also extended and broadened the ground that they may occupy; and that those who complain most are the ones who graduated a quarter of a century ago and have not kept apace with the times. Further, that the end of this marvelous progress has not yet been reached, that the dentistry of to-day is only a part of that of to-morrow, and that the college is the only legitimate avenue of entrance into the ranks of the profession. In defense of the colleges he then asserted that they could not make honest men of rogues, but must accept the material offered, and could then but present to them the opportunity.

With regard to the Faculties Association he said the history of nations proved that no one man or set of men could be trusted with absolute power without degenerating, and in view of the obligations and responsibilities the colleges assumed, that every fair man, teacher or not, must admit they should be responsible to and supervised by some competent authority to at least prevent degeneration.

A somewhat lengthy review of the examining boards then came, and they were referred to as being the outgrowth of the unsettled conditions existing in the early period of dental organization, when legislation was first required but before we knew what was wanted, and that it was secured unfortunately without concert of action, interstate consultation, or professional co operation, resulting as it has in a medley of conflicting enactments arraying the profession of one state against another.

The laws of one state, providing that the state society should have supreme power, were attacked as being "class legislation;" and those of another, providing that this power should be placed in the hands of an examining board appointed by the governor, were ridiculed with equal vehemence as being degrading, because they carried professional affairs into politics, and placed the board on a level with the ward caucus.

What is to be done was then asked, and as a solution of existing difficulties Dr. Barrett suggested that we must retrace our steps and endeavor to secure a wise and uniform legislation, one that will found and recognize three distinct branches of dental organization—each with its own special field of labor, each responsible and accountable to the law, each the peer, cooperator and auxiliary of the other, and yet an independent part of one coordinate whole. As in our civil government we have legislative, judicial and executive bodies, so could and should the state society, the examining board, and the colleges work in harmony to promote the same ends. But that neither in any expediency should assume jurisdiction over the other, as was recently the result of mistaken views of their own function, or personal ambition and thirst for domination and power, by the examining boards in attempting to meddle with the details of the conduct of schools, which was necessarily vigorously resisted because it threatened the independence, effectiveness, and very existence of the latter.

That there was plenty of room for the board to exercise all of their energies he then pointed out, if they would confine their function to regulating practice instead of teaching; exterminating fraudulent schools; preventing illegal practice, prosecuting violators of the law, and other executive instead of legislative business; and intimated that it was their duty to cooperate with and help the schools, instead of repressing them. Their effectiveness and sincerity was then questioned in the methods of examination adopted. It was here suggested that as the average member of state boards had graduated ten or more years ago, he was necessarily more or less in the dark regarding the course of instruction of to-day; and that in consequence, instead of making the didactic and theoretical branches the main issue in conducting examinations, the boards would better leave alone to an extent that of which they knew least, and devote more time to ascertaining the qualifications and fitness of the candidate in the *practical* lines, where they are more capable of judging. Their passing upon a candidate's papers, etc., in star-chamber session, and their refusal to give out grades and averages to a rejected candidate, were then roundly criticized as a farce, and your writer knows of instances which prove this a just criticism.

Granting it is imperatively demanded that the colleges must be responsible to some power, that power should lie in the hands of competent, unbiased persons, and not be given to examining boards for the reasons mentioned, nor to state societies, because they were but self-organized bodies without authority to enforce their own mandates.

In closing the essayist assumed there was nothing left but to put forth another effort to secure new and competent legislation, as nearly uniform in all states as possible; which would prescribe the duties of each, prevent encroachments of the one upon the other, and hold each rigidly to account with the courts as their judges. That we shall begin right here at home to this end, because of having the reputation of harboring more fraudulent colleges than all other states combined, and that we should enjoy the cooperation of every examining board, state, and dental society, which from the history of the past we will have from the colleges, because they are the only organizations that have spent a dollar to put forth a sustained effort to do that in which the boards should have taken the lead, instead of trying to regulate the colleges, who are faithfully and successfully trying to regulate themselves.

In opening the discussion Dr. Black said, that because of the rights of individual states uniform laws were out of the question, yet we should work toward an end as nearly uniform as possible. The law of the State of New York was the best and yet imperfect, but that if the profession should work as one man, its equal in all states at least might be secured. He concluded by affirming that the dental was the best organized of any of the professions, and that the Faculties Association had more power than any other professional body.

Dr. Harlan claimed that the Faculties Association possessed legislative power, in contradistinction to the examining boards, who were self-organized bodies without power, and that whatever action the latter might take in

executive session, may be undone or inoperative when the members return home to their own bailiwicks. Systematic dental education dates back to about 1860, and real education began only about 1880, and the dental profession was one of the most energetic industrious callings on earth, with a proportionately smaller tendency toward quackery than any other.

Dr. Brophy first stated that the legislation enacted by the Faculties Association was but that necessary to meet the exigencies and requirements, and that it in no way conflicted with the laws of our commonwealths, while these same laws prescribed the duties of examining boards. He believed a universal law was never possible, because it would be against the constitution, and he called attention to the fact that at the last meeting of the examining boards about twelve states were represented, while in the Faculties Association almost every state and college in the country had delegates in attendance. In conclusion, he paid a tribute to the strength and standing of the profession, and to the respect in which it was held, as illustrated by the fact that in all these years no legal trouble had resulted from the administration of anesthetics.

Dr. Reid then spoke at some length upon the duties of state boards, and with some fervor acknowledged that he as a member of one tried to do his part, but knew of instances where others, purposely or otherwise, fell short; and he concluded by criticizing the essayist for not having sent an abstract of his paper to some in advance.

Dr. Noyes suggested that all primitive aggressive movements invariably create strife at first, and there is no doubt but that the education of students needs supervision and stimulus from other outside influences. The profession should be the influence.

Dr. Barrett in closing apologized for not having finished his paper in time to send copies to those selected to discuss it, and acknowledged that while he had known of his appointment to read it before this society for several months, he had completed it only a few hours before leaving home. He then affirmed that the examining boards cannot legislate for the schools, any more than the schools can legislate for the profession. H. J. GOSLEE.

## News Summary.

J. J. VINCENT, a dentist at Brookton, Mass., was married Nov. 27.

C. L. MUNNS, 82 years old, a dentist at Philadelphia, died Dec. 4, 1900.

L. H. GIFFEN, a dentist at Webster City, Ia., was married Nov. 28, 1900.

HENRY NEFF, 81 years old, a dentist at Bridgeton, N. J., died Nov. 19, 1900.

JACOB STEWART, 74 years old, a dentist of Moline, Ill., died Nov. 17, 1900.

ERNEST DRAVER, 29 years of age, a dentist at Cloquet, Minn., died Nov. 20, 1900.

ARMY REORGANIZATION BILL passed the House Dec. 6 by a vote of 166 to 183. Among the amendments adopted was that providing for thirty dental surgeons. It now looks as if this bill might become a law.

E. M. VARY, a well-known dentist at Kingston, N. Y., died Nov. 5, 1900, from paralysis.

J. B. STREETER, 71 years of age, a dentist at Allegan, Mich., died with paralysis Dec. 10, 1900.

NEWS.—Electricians supply us with current topics of the day, and physicians with news of the weak.

W. H. JOHNSON, 80 years old, a dentist at Johnstown, Pa., died Nov. 30, 1900, presumably of blood-poisoning.

SOCIETY ITEM.—"Miss Hattie Miller was in town last week having some dental work done."—*Cynthiana (Ky.) Dem.*

JOHN E. ROBIE, 54 years old, treasurer of the Buffalo Dental Mfg. Co., died Nov. 24, 1900, from a stroke of paralysis.

C. E. RICHARDS, a young dentist at Fond du Lac, Wis., is on trial charged with assault on a Chinaman with intent to murder.

JOSEPH LATHROP, 66 years of age, and one of the oldest practicing dentists in Detroit, Mich., died suddenly of pneumonia Dec. 4, 1900.

A. C. THOMPSON, a well known dentist at Torrington, Conn., was married Nov. 28, 1900. He is a graduate of the Philadelphia Dental College.

FETCHING OPERATOR.—"Dr. Ridgely operated successfully on several very fetching molars for John Gillett Saturday."—*Rapid City (Mich.) Paper.*

STATESMAN HARD UP.—A dentist at Willimantic, Conn., has brought suit against a Representative from his state to recover \$5.00 for dental services.

F. B. SLAYTON, 54 years old, a dentist of Geneseo, N. Y., died Dec. 9, 1900, from bromid poisoning. He was formerly wealthy, but died in the poorhouse.

DEATH FOLLOWS EXTRACTION.—A motorman at Chester, Pa., apparently in robust health, had a tooth extracted Nov. 20, and died soon after returning home.

JOHN O. SCOTT, 65 years of age, a dentist at Waupaca, Wis., died Dec. 5, 1900. He was a captain in the Civil War and was twice elected mayor of his town.

"THE BACILLUS" is a bright little magazine published in the interests of the medical, dental and pharmacal departments of the Illinois Medical College, Chicago.

SUCCESS ONLY PARTIAL.—"Tell me, Dootor, were you successful with that new patient?" "Only partially so; I cured him, but have not succeeded in getting any money yet."

DEFECTIVE SIDEWALK CAUSES DAMAGE SUIT.—A dentist at Salina, Kas., has filed a claim for \$1,814 for damages resulting from his falling on a defective sidewalk in that town.

FILLINGS DROPPED OUT.—A dentist at Newport, Ky., sued a patient for a bill for dental work, but the defendant testified that all but three out of fifteen fillings had come out, so the jury returned a verdict against the dentist.

**SWALLOWING FALSE TEETH FATAL.**—A man at Fall River, Mass., swallowed his set of false teeth recently, and although they were recovered, blood-poisoning set in, causing death.

**WESTERN INDIANA DENTAL ASSOCIATION** was organized at Terre Haute recently, and the following officers were elected: Pres., W. R. Mail; V. P., O. M. Brown; Sec., B. B. White; Treas., W. G. Rice.

**SYRACUSE DENTAL SOCIETY** at its meeting Dec. 10, 1900, elected the following officers for the ensuing year: Pres., A. D. Wells; V. P., J. E. Cummings; Sec. and Treas., W. F. Engle; Rep. Sec., J. H. Dower.

**CHRISTIAN SCIENCE.**—"It is very curious, the effect which Christian Science has upon the verbal bowels, particularly the third degree. It makes me think of a dictionary with the cholera."—*Mark Twain*.

**POLISHING FILLINGS.**—Keep a cake of calcined magnesia in the cabinet and when the last disk of fine cuttle-fish is to be used, touch it to the magnesia and you will give the gold a brilliant polish.—*Dental Hints*.

**LUNAR CAUSTIC WITH COCAIN.**—To make the application of silver nitrate less painful simultaneous use of cocain nitrate is recommended. The hydrochlorate is not suitable, as it precipitates silver as chlorid.—*Ztsch. f. Ph.*

**PHYSICIAN ARRESTED FOR PRACTICING DENTISTRY.**—A physician was arrested at Bridgeton, N. J., recently for practicing dentistry without a license. He was registered as a physician in three states, but not as a dentist.

**MAKING USE OF HIS OPPORTUNITIES**—"Dentist —— is now crowded with work. He and his wife are well and popularly known throughout Des Moines society, and the doctor's practice is benefited thereby."—*Des Moines (Ia.) State Register*.

**IGNORANCE ALMOST FATAL.**—A sixteen-year-old girl at Manchester, Mass., recently applied carbolic acid to her gum to relieve toothache, and not knowing how powerful the drug was, she used too much. It is thought, however, that she will recover.

**DIRTY TOOLS CAUSE BLOOD-POISONING.**—A young woman at Sidney, Me., is dangerously ill from blood-poisoning, resulting from the fact that a traveling dentist infected her with dirty tools. Her face is swollen out of all recognition, and she may not recover.

**CYLINDER OF GAS THIS TIME.**—A dentist at Council Bluffs, Ia., had his office furniture badly damaged Dec. 5 by the explosion of a cylinder of nitrous oxid gas. Fortunately the dentist and his patient had just left the room, for the cylinder was blown into several pieces.

**BRIBERY TO OBTAIN DIPLOMAS.**—Dr. A. F. Emminger, president of the Ohio State Board of Dental Examiners, was recently offered by a stranger \$300 if he would give a license to practice dentistry. Some months ago he was offered \$500 on the same conditions. Unfortunately there is no prospect of punishment, as Dr. Emminger is not in possession of the names of the parties involved. The board has an odd case in Cleveland. Years ago all barbers pulled teeth, and two Cleveland barbers are now claiming the

right to pull teeth, because the law of 1899 exempted from examination all dentists then practicing.

JEFFERSON COUNTY DENTAL SOCIETY, at its sixth annual meeting, Dec. 10, 1900, in Watertown, N. Y., elected the following officers for the ensuing year: Pres., D. A. Scobie; V. P., G. R. Danforth; Sec. and Treas., R. F. Casler; Ex. Com., G. B. Parker and E. E. Harrington.

UNPAID BILL CAUSES WORRY.—Patient: "Doctor, I can't sleep at night; I tumble and toss until morning." Doctor: "That's bad, let me see your tongue. There does not seem to be anything the matter with you; perhaps you worry over that bill you have owed me for two years."

TEETH IN PAWN.—One of our subscribers in New York recently saw a large number of sets of false teeth displayed in a pawnbroker's shop in that city, and upon inquiry the pawnbroker stated that some of them were old, but that a large number had been taken directly from the mouth of unfortunates who were hard up.

NEGRO WISHES LICENSE.—A negro at Louisville has filed a mandamus suit to compel the Kentucky State Board of Dental Examiners to grant him a license to practice dentistry. He alleges that he has a diploma from the Dental College of the Western University of Illinois, wherever that may be, but the board refuses to recognize it.

QUONEHTAOUT DENTAL CLUB (CONN.) held its annual meeting Dec. 11, 1900, and also had a dinner in honor of the fifty-sixth anniversary of the discovery of anesthesia by the late Dr. Horace Wells. Charles T. Wells, his son, was the guest of the club. Officers were elected as follows: Pres., Edward Prentiss; V. P., J. Tenney Barker; Sec. and Treas., Chas. McManus.

"ARTIFICIAL CROWN AND BRIDGE WORK." By George Evans, D.D.S., New York. This edition, the sixth, in addition to the main features contained in the earlier issues, has a department devoted to porcelain dental art. The author is thoroughly conversant with his subject, and the book is to be heartily recommended. Price, \$3 net. S. S. White Co., Philadelphia.

TO OBTAIN DUPLICATES OF PLASTER MODELS.—Soak about 150 leaves of common gelatin in cold water for one or two hours, gradually adding four or five ounces of oil, constantly stirring. Place the model in an enameled vessel and pour the above mixture over it. After about three hours it will have hardened, when the model may be removed and any number can be poured.—*F. A. B. Dental Office and Laboratory.*

HIS AWFUL BLUNDER.—Singleton: Dr. Pellet is certainly the most absent-minded man I ever saw.

Wederly: Is that so?

Singleton: Yes; he was married last week and during the ceremony when he should have placed the ring on the bride's finger he actually felt her pulse and asked her to put out her tongue.—*Chicago News.*

"AMERICAN TEXT-BOOK OF OPERATIVE DENTISTRY." In contributions by eminent American authorities Edited by Edward C. Kirk, D.D.S. This book covers its particular field very successfully, and we heartily recommend

it to students and dentists. New (second) edition, revised and enlarged. In one very handsome octavo volume of 857 pages, with 897 engravings. Cloth, \$6; leather, \$7. Lea Bros. & Co., Philadelphia and New York.

**REGULATING NOT REMUNERATIVE.**—In a recent case in which Mr. Glassington sought to recover a fee for regulating a girl's teeth, the judges summed up against him and said the parents need not pay as there was no specific contract, and that regulating teeth was not a "necessity." This decision should make us very careful before embarking in what often is the most tedious and unsatisfactory work we are called upon to do.—*Brit. Jour. D. S.*

**MEDICAL EDITOR WANTED.**—Dr. Walter L. Pile, of Philadelphia, advocates a medical member on the staff of the daily newspaper. He refers to a recent article in the *New York Herald* on "Sleep Cure for Nervous Diseases." The cure was stated to consist of "eight grains of bromin every two hours in a glass half full of water." "Rest—absolute prolonged rest—was the one thing which persons suffering from nervous disorders stood most in need of," and the advice, if followed, would certainly produce absolute and prolonged rest.

**FRACTURE OF JAW FIRST SIGN OF TABES. SABRAZES.**—A healthy working-woman began to suffer with intense toothache, the pains radiating through the head and face. The teeth and gums appeared normal in every respect, but she applied to a dentist to have the right cuspid extracted, from which she suffered most. As he pulled it, the entire alveolar process of the upper maxillary bone broke off with it, with all the solidly implanted, sound teeth. Two years later unmistakable symptoms of progressive tabes appeared.—*Jour. A. M. A.*

**BUCCAL LEUCOPLASIA.**—E. Gaucher. When the patch is smooth, Gaucher gently paints it once or twice a day with an aqueous 2 per cent solution of potassium bichromate. This treatment should be continued patiently, as instances have been known of a cure after three years. If the patch is papillomatous, the excrescences should be removed with the galvanocautery and the mouth frequently rinsed with a 10 per cent solution of magnesium chlorate. The patient should be kept under surveillance to detect incipient cancerous degeneration.—*Jour. A. M. A.*

**ALCOHOL AS A DISINFECTANT.**—Recent researches seem to show that absolute alcohol is devoid of all disinfectant properties, whereas proof spirit (50 per cent) gives more tangible results in this direction than either stronger or weaker solutions. Antiseptic substances which in aqueous solution are more or less active germicides, entirely lose this property when dissolved in strong alcohol; but, on the other hand, corrosive sublimate, carbolic acid, lysol, and thymol, dissolved in a 50 per cent solution of alcohol, disinfect better than aqueous solutions of same strength.—*Med. Press and Circular.*

**QUESTIONS ANSWERED.**—The postmaster at Bucyrus, O., recently received a long letter from a young dentist who wished to ascertain the possibility of his pulling out a comfortable living in that city. Among other things in his reply the postmaster said, "We have the best town in Ohio; a curfew ordinance; no taxes; free mail delivery; no need to stamp letters; a Republican

town and everything goes. Hickory nuts flourish in abundance, and the people crack them with their teeth. Thirteen dentists are already here and three more have rented offices and will move in. Come ahead."

**NEW CURE FOR ASTIGMATISM.**—An English weekly is responsible for the following gem: "In the public schools of some cities measures are taken, by presumably competent officials, to test the children's eyesight. A little boy came home one day, with the following note signed by the principal: 'Mr. Green: Dear Sir. It becomes my duty to inform you that your son shows decided indications of astigmatism, and his case is one that should be attended to without delay.' The father sent this answer the next day: 'Mr Kershaw: Dear Sir. Whip it out of him. Yours truly, John Green.'"

**ANTAGONISM BETWEEN COCAIN AND HYPNOTICS.**—Carlo Gioffredi concludes from a long series of experiments: (1) That chloral hydrate is a decided antagonist of cocain, being able to counteract the action of doubly lethal doses given to a dog; (2) other hypnotics, such as paraldehyd, are likewise antagonistic to cocain; (3) the antagonism is complete, influencing all the important organic functions; (4) it is a one-sided antagonism, for cocain does not counteract poisoning by the hypnotics; (5) the antagonism is a mechanical one, similar to the antagonism between the hypnotics and strychnin.—*Giornale Intern. Sci. Med. Rec.*

**PYORRHEA ALVEOLARIS.**—The relation of Riggs' disease to general surgery is here noticed by Abbott, who believes that it is responsible for many conditions, such as putrid exudates, etc. He mentions a case where this has developed extensive inflammation and septic infiltration of the lymphatics and glands of the floor of the mouth, the throat and neck. In other cases it may produce antral disease, and he has heard of a case of cystitis which cleared up at once after the extraction of the diseased tooth. He asks what surgeon would allow his patient to take five or six drops of pus three or four times a day, yet this must be the case with sufferers from this disorder.—*Jour. A. M. A.*

**RETRACTING SINGLE TEETH.**—Recently I had to retract a superior right central. The appliance consisted of a strip of German silver of about twenty-seven gauge and an eighth of an inch in width. The central portion was made to pass over the labial surface of the malposed tooth, the ends resting against the palatine surfaces of the adjoining central and lateral. The right central was not only drawn into position, but space was at the same time provided for its accommodation. As the space between the left central and right lateral was increased, a new turn was given the strip so as to exert more pressure. However, new strips can be cut and shaped almost as quickly as the old one can be altered.—H. Knowles in *Items*.

**MEDICAL TESTIMONY UNRELIABLE.**—How unreliable a thing medical testimony very often is was excellently shown in a case that came up in California about a year ago. A woman was suing a railroad company for damages, she having met with an accident on a train of the defendant company, as a result of which a tumor had formed itself in her stomach, which, according to the testimony of her physicians, could not be removed. The doctors of



the railroad company also examined her and were compelled to corroborate the statements of the expert testifiers. Upon this evidence judgment was rendered in her favor to the amount of \$25,000. Two or three months later she gave birth to a little girl; and that was the only tumor she had ever had!

**DIPLOMA MILL CONDUCTORS FOUND GUILTY.**—James Armstrong, founder of the Illinois Health University, the Independent Medical College, the Metropolitan Medical College, etc., etc., was this month sentenced by the Federal Court to the county jail for one year and to pay a fine of \$500. Sentence against Thomas Armstrong, who was convicted, and John H. Randall, who pleaded guilty to the same offense, will be passed at the next term of court in March. The State Board of Health has been after these men for several years. During the evidence it was shown that the "college" was turning out "diplomas" at the rate of one thousand per year, and that one-tenth of the "graduates" never attended the institution nor had any instruction whatever from it.

**CHINESE FOR "UNAVAILABLE."**—According to the *Religio-Philosophical Journal*, this is the way MSS. are refused in China: "Illustrious Brother of the Sun and Moon! Look upon thy Slave who rolls at thy feet, who kisses the earth before thee, and demands of thy charity permission to speak and live. We have read thy Manuscript with delight. By the bones of our Ancestors we swear that never have we encountered such a Masterpiece. Should we print it, His Majesty, the Emperor, would order us to take it as a criterion, and never again to print anything which was not equal to it. As that would not be possible before Ten Thousand Years, all trembling we return thy Manuscript, and beg of thee Ten Thousand Pardons. See! my hand is at my feet, and I am thy Slave." Dental editors may profit by this.

**QUICK WAY OF REPLACING BROKEN TEETH ON VULCANITE PLATE.**—Dr. A. P. Gore showed a quick way of adjusting a tooth to celluloid or vulcanite, applicable to plates from which one or more teeth or a block are broken. He first cuts with an engine bur a well-defined mortice or groove, with deep undercuts in the plate to receive the pins of the tooth or block to be replaced, and fills the mortice and undercuts with fusible metal. Then, holding the plate wrapped in a napkin in the left hand, with a pair of pliers in the right hand the tooth is held near the flame of an alcohol lamp, while an assistant holds a blunt instrument in the same flame. When the instrument is heated it is placed upon the metal in the groove cut in the plate, which instantly is melted, and while in that condition the warm tooth with heated pins is pressed home. Firm pressure should be continued while the metal is cooling, to prevent shrinkage while cooling. The result is a tooth or block firmly attached to the plate, and is especially suitable for emergency cases. —*Cosmos*.

**CURIOUS CONCEPTION.**—A woman named Akroyd, says *The Barrister*, was tried before the Court of Queen's Bench in Dublin for refusing to produce a child which she had abducted. Some amusement was created in court when the prisoner was sentenced for six months, without hard labor, in Richmond prison, which is only for the incarceration of males. Carved in the stone-

work over main entrance to prison are the following words: "Cease to do evil, learn to do well." The commitment was the subject of the following lines:

In most earthly tribunals some harshness prevails,  
 But the Court of Queen's Bench is both prudent and mild;  
 It committed Miss A. to the prison for males,  
 As the readiest mode of producing a child.  
 How she'll do so surpasses conception to tell,  
 Should she "cease to do evil, and learn to do well;"  
 And if in six months, without labor confined,  
 She produces a child, she'll astonish mankind.

**CILIARY NEURALGIA OF PALUDAL ORIGIN.**—By Dr. A. L. Orlofsky. The term ciliary neuralgia stands for attacks of pain in the region of the ciliary nerves that supply the eyeball with sensory fibres. There are two varieties of this affection, the secondary and the idiopathic. The former constitutes a fairly frequent symptom of various diseases of the eyeball, the latter is due to some general infection. The case reported here was of malarial origin, the patient being the author himself. In the course of an attack of malaria he was seized with a severe pain in the left eyeball. At first the pain appeared only on pressure upon the eyeball, and on examination no changes were found in the eye. The pain became acute, shooting, boring, and aggravated by light. There appeared lachrymation, a burning sensation in the eye, and painful spasmodic contractions of the eyelids. Applications of cocaine and various other remedies were tried, but in vain. Finally subcutaneous injections of quinin and of morphin were ordered, and the pain disappeared after the first injection. Five days later, the patient was seized with an attack of neuralgia of the teeth, and this also yielded quickly to subcutaneous injections of quinin. The writer concludes that the neuralgia of the eye, as well as that of the teeth, was due to malarial infection.—*Vratch*.

**BARBER DENTIST.**—It does not seem so long ago since the Strand barber went to prison. Now a Sydney newspaper tells us about Walter Thomas Scurrah, "hair-dresser and dentist," who has been fined £5 as an alternative to a month's imprisonment. The plaintiff, Riley's, evidence was to the effect that he called in defendant's brother's shop and asked to be shaved. Defendant attended to him, and while giving him a final brush up remarked that "he had a fine set of teeth." "Do you mind me looking at them?" defendant was alleged to have said, and receiving the necessary permission, suggested, after examination, that as they were a trifle "scurfy," he be allowed to clean them. Complainant being agreeable, defendant produced what appeared to be a stick, and after rubbing them over, asked witness to rinse his mouth. Riley then left the chair and handed a sovereign in payment for the shave and hair brush, regarding the teeth cleaning operation either as an act of charity or one of friendship. While waiting for his change he was shocked to hear Scurrah say, "Another 1s. 6d., please," at the same time intimating that his charge for cleaning teeth was £1 1s. Riley demanded his change, but was only given 5s. of the amount. The evidence

for the defence was that a card was suspended in a conspicuous place on which the prices were painted, and complainant must have noticed it, and, further, that he had instructed defendant to perform the scouring operation. The price-list put in as an exhibit bore the line "Teeth £1 1s."

**TO CURE A CHILD OF STUTTERING.**—The child that stutters must be gently, patiently and persistently corrected, stopped when he begins to hesitate, made to fill the lungs with air by a deep inhalation, and then to pronounce the difficult syllables until he can do so easily and smoothly. If this course is pursued undeviatingly cure is certain.—*December Ladies' Home Journal*.

**INTRA-AURAL APPLICATIONS OF CHLOROFORM IN TRIFACIAL NEURALGIA AND HEADACHE.**—Bose (*Indian Medical Record*, January 3, 1900) has obtained excellent results in trigeminal neuralgia and severe headache from the introduction just inside of the external auditory meatus of pledgets of cotton-wool well soaked in chloroform. The pledgets are covered with dry cotton-wool before being inserted. Within half a minute a burning sensation is excited, and as this increases the headache disappears. The writer concludes that this method of treatment rarely fails to give even temporary relief, and only twice aggravated the pain; that it is only palliative in neuralgias due to fever or dental caries and in some cases of inflammatory origin, but is curative in very many cases of inflammatory, reflex, and inexplicable origin, and in cases due to anemia, insomnia, and exposure to the sun or to cold; that it removes uncomfortable sensations from the trigeminal area, and is probably the best remedy for neuralgias in neurotic persons who can not bear internal medication. As one application usually cures pain that has lasted from a few hours to a few weeks in over 50 per cent of headaches and faceaches, the method ought to be the first tried in all cases.

**THE ANTIQUITY OF MODERN SCIENCE.**—From time to time glimpses come to sight of the light that really existed, far beyond what is commonly supposed, in the esoteric knowledge of the ancient world. Much of the teaching of the earlier books of the Old Testament is now seen to be in accord with some of the most advanced sanitary science. Professor Nophtuli Herz Imber, in the *Denver Medical Times* for April, gives an insight into the medical teachings of the Talmud, from which we gather that most ailments were even in those days supposed to be due to little dangerous organisms, termed "shedins" (destroyers), too small to be seen by the eye. These organisms were inhabitants of air, water, animals, and decomposed wood. Hogs and certain fishes were the creatures most infested by them. Leprosy was due to the presence of such organisms beneath the skin, and its origin was attributed either to eating certain fish or to wearing untanned hides. The ordinances which forbade spitting in the streets of Jerusalem, allotted four cubits of space to each dweller in a room, and prescribed the investigation of the lungs and livers of slaughtered animals, seem to indicate quite an up-to-date board of health some two thousand years ago, while the Talmudic admonition concerning flies as transmitters of disease, if better known, might have caused more respectful attention to be paid to the warning of the surgeon-general in respect of flies and typhoid in our late campaign. *E pur si muove*, but always in an orbit.—*New York Medical Journal*.

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